COORDINATION OF PESTICIDES PROGRAMS

THE UNIVERSITY OF MICHIGAN
JUL 13 1960
MAIN READING ROOM

HEARINGS

BEFORE THE

SUBCOMMITTEE ON FISHERIES AND WILDLIFE CONSERVATION

OF THE

COMMITTEE ON MERCHANT MARINE AND FISHERIES HOUSE OF REPRESENTATIVES

EIGHTY-SIXTH CONGRESS

SECOND SESSION

ON

H.R. 11502

TO PROVIDE FOR ADVANCE CONSULTATION WITH THE FISH AND WILDLIFE SERVICE AND WITH STATE WILDLIFE AGENCIES BEFORE THE BEGINNING OF ANY FEDERAL PROGRAM INVOLVING THE USE OF PESTICIDES OR OTHER CHEMICALS DESIGNED FOR MASS BIOLOGICAL CONTROLS

MAY 3 AND 4, 1960

Printed for the use of the Committee on Merchant Marine and Fisheries

UNITED STATES
GOVERNMENT PRINTING OFFICE
55904 WASHINGTON : 1960

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COORDINATION OF PESTICIDES PROGRAMS

TUESDAY, MAY 3, 1960

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON FISHERIES AND
WILDLIFE CONSERVATION OF THE COMMITTEE
ON MERCHANT MARINE AND FISHERIES,
Washington, D.C.

The subcommittee met, pursuant to notice, in room 219, Old House Office Building, Hon. George P. Miller presiding.

Present: Representatives Miller, Dingell, Lennon, Van Pelt, Gross, and Curtin.

Staff member present: Bernard J. Zincke, counsel.

Mr. MILLER. The subcommittee will next consider H.R. 11502, a bill to provide for advance consultation with the Fish and Wildlife Service and with State wildlife agencies before the beginning of any Federal program involving the use of pesticides or other chemicals designed for mass biological controls.

(H.R. 11502 follows:)

[H.R. 11502, 86th Cong., 2d sess.]

A BILL To provide for advance consultation with the Fish and Wildlife Service and with State wildlife agencies before the beginning of any Federal program involving the use of pesticides or other chemicals designed for mass biological controls

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Chemical Pesticides Coordination Act".

SEC. 2. No officer or agency of the Federal Government shall initiate, or provide any financial or other assistance for, any program involving the use of any chemical insecticide, herbicide, fungicide, rodenticide, or other chemical used in biological control until such officer or agency has consulted with the United States Fish and Wildlife Service and with the head of the agency exercising administration over the wildlife resources of each State to be affected by the program. Before such consultation occurs, the Federal officer or agency concerned shall furnish the United States Fish and Wildlife Service and each such State agency with complete information about the proposed program.

SEC. 3. The United States Fish and Wildlife Service shall advise the officers and agencies consulting with it, as required by section 2, of the damage to wildlife resources which might result from any proposed program. Such Service shall cooperate with such Federal officers and agencies in developing programs involving the use of chemical insecticides, herbicides, fungicides, rodenticides, and other chemicals used in mass biological controls, or other methods with a view to achieving the results desired while minimizing the undesirable effects of the program on the wildlife resources of the area. In the event any Federal officer or agency shall fail to take any action recommended by the United States Fish and Wildlife Service, such Service shall make a report thereof without delay to the Congress for referral to the appropriate committees.

SEC. 4. The Secretary of the Interior may, by regulations, make exceptions from the application of this Act where, by reason of the limited nature of the program or by reason of the proved harmlessness of the chemical involved, little or no damage to wildlife resources could result from the program.

Mr. MILLER. Is Mr. Wolf or a representative of Mr. Wolf here?

Mrs. WOLF. I am Mrs. Wolf, and I must say that my husband very much regrets the necessity of his being out of town today, but he asked me to present part of his statement to you.

Mr. MILLER. May I say that we much prefer you here than Mr. Wolf.

Mrs. WOLF. Thank you very much.

Mr. MILLER. When it comes to pulchritude, there is no question as to where it rests in the Wolf family.

STATEMENT OF HON. LEONARD G. WOLF, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA, AS READ BY MRS. WOLF

Mrs. WOLF. I very much appreciate the opportunity to appear today in support of my bill, H.R. 11502, known as the Chemical Pesticides Coordination Act, which is designed to avert the serious and unnecessary losses of fish and wildlife that have occurred in many areas as a result of the careless or uniformed use of chemical pesticides. The bill would require any Federal department or bureau engaged in, or planning to engage in, a program or operation utilizing insecticides, herbicides, or other chemicals, to consult in advance with the U.S. Fish and Wildlife Service and the appropriate State wildlife authorities. Through such advance consultation, the probable effects upon wildlife resources can be studied and techniques devised to minimize losses.

The principle of such legislation has already been firmly established by the Congress. Our precedent is to be found in the Fish and Wildlife Coordination Act (60 Stat. 1080) passed in 1946, and strengthened only 2 years ago by the adoption of modernizing amendments. This earlier and highly successful Coordination Act has to do with water development projects. It assures that before a stream is dammed, dredged, or otherwise manipulated, there shall be advance study of the effects upon fish and wildlife, and advance planning coincident with the blueprinting of the project, to mitigate wildlife losses or, as is frequently possible, actually to enhance wildlife resources.

I am confident that in many operations involving chemical controls, benefits, rather than damages, will accrue to wildlife if there is proper coordination between the pest control agency and the agencies responsible for wildlife conservation.

Biologists on the King Ranch in Texas, for example, have shown that brush removal, while detrimental to wildlife if applied uniformly across thousands of acres, can actually benefit deer and other game if applied in alternate strips with intermediate strips left to supply cover.

The need for coordination in the use of pesticides has been amply demonstrated. This is but another example of the problems we encounter in this age of technology when man's invention of new tools frequently outruns his wisdom in using them. In his effective work to secure larger appropriations for research into the fish and wildlife effects of chemical pesticides, the gentleman from Montana (Mr. Metcalf) has told the House how careless use of DDT in the forested watersheds of Montana resulted in various and prolonged damage to famous trout streams of that State.

Serious wildlife damages resulted from the hasty and large-scale aerial application of toxic chemicals in the fire ant control program carried out in certain southeastern States by the U.S. Department of Agriculture. These losses have been carefully and irrefutably documented by Federal and State research biologists.

The hazards to human health although not so well understood, not so amply demonstrated to date as those to wildlife, are no less important. It will perhaps be more practical to deal with the human health problems in a separate bill. For this reason my present introduction deals only with the wildlife problem. Suffice it to say here, with respect to the overlapping questions of human health, the chemical heptachlor, already spread over hundreds of thousands of acres of farmland in the fire-ant program, has been shown in laboratory tests to be highly hazardous to human health. Accordingly, the Food and Drug Administration has declared a zero tolerance for heptachlor in foodstuffs. Fish and wildlife research has discovered that heptachlor is stored in the tissues of wild birds, such as quail and pheasants, that pick up insufficient quantities to be fatally affected.

I raise the question: In view of the zero tolerance for heptachlor in farm-produced foodstuffs, what about the health of the sportsman-hunter and his family who will dine on the quail carrying this poison?

The chemical manufacturers may fear that control might affect the fast-growing pesticide market. However, unless reasonable control procedures are established, like the simple one proposed here, an indignant public will demand and get rigid controls.

Control entomologists may argue that a law requiring advance consultation and coordination with wildlife agencies is impractical because insect outbreaks often occur suddenly and without warning. Before interdepartmental redtape could be cleared, they will say, many farmers would be seriously hurt by an outbreak of grasshoppers or Japanese beetles, for example.

This is not a valid objection because under the bill the control procedures, the materials to be used, the methods and rates of application, et cetera, all could be worked out with the Fish and Wildlife Service in advance of actual outbreaks with respect to any of the common insect pests. Once the approved procedure for Japanese beetles has been agreed to, for example, subject to modification as research finds better methods, those procedures could be applied immediately by the control agency whenever and wherever a new outbreak occurs.

The bill, of course, would apply only to Federal control programs. It would not affect activities by State control agencies or by private individuals on private lands, except indirectly by example. The States and local agencies must accept some of the responsibility. The fact that most of the States have not as yet enacted controls in this area is no reason why Congress should not require desirable coordination among the Federal agencies.

I am not wedded to the specific language of my bill. I do believe it proposes a sensible solution to a problem of increasing urgency. I hope it may lead to enactment of a workable chemical pesticides coordination act.

It is my understanding that representatives of the various wildlife agencies and organizations will present their views here today.

Mr. Chairman, I would like to have inserted into the record of the hearings at this point, a statement of the Southeastern Association of Game and Fish Conservation Commissioners, together with a resolution adopted by that organization, expressing its views on the need for greater caution in the use of chemical pesticides. This association is composed of the official State conservation representatives of the southeastern United States.

Mr. MILLER. Without objection, the statement will be made part of the record.

Mrs. WOLF. Thank you very much.

(The statement follows:)

THE PESTICIDE PROBLEM

The Southeastern Association of Game and Fish Conservation Commissioners, the International Association of Game, Fish and Conservation Commissioners, and conservationists generally are not opposed to needed and properly supervised pest control, for they realize that control compounds were developed in response to a public need and demand. They use many pesticides and recognize that these chemical controls are effective and economical tools of management when wisely directed and skillfully applied.

They do, and should, oppose unnecessary controls or the irresponsible and widespread application of unnecessarily toxic formulations and amounts of dangerous poisons that are indiscriminately broadcast (usually from the air) in a way that does serious and unnecessary damage to wildlife and other desirable natural resources and probably also threatens human health.

THE FIRE ANT ERADICATION PROGRAM AND PROPAGANDA

Perhaps the most severe criticism of conservationists is directed against what they feel has been an irresponsible and poorly directed fire ant eradication program conducted in nine Southeastern States and directed by the control arm of the U.S. Department of Agriculture. It is not improbable that this program will go down in history as a classic example of how not to initiate, direct, and conduct a control program. It is an example of arrogant bureaucracy at its worst. The philosophies expressed and procedures followed affect all our citizens and, if they should become established, would strike at the heart of democracy itself; therefore this program far transcends the importance of any local issue.

Propaganda supporting this program has been characterized by extreme, inaccurate, and unfounded assertions. Inaccuracies, even in high level pronouncements, have been so numerous and serious as to make it incredible that such could come from a responsible and important arm of Government.

This eradication program obviously was started with far too little research on the needs of control, the food habits and economic relations of the fire ant, on safe and effective procedures of control and on the immediate and indirect and accumulative effects of a fire ant eradication program.

Cooperation with wildlife workers on State, Federal, and local levels has been most unsatisfactory. In relatively few instances have serious and responsible wildlife biologists been permitted to know when or where a specific area was to be treated. Information given concerning treatment has too frequently been considerably short of the truth. Furthermore, the information and findings of the biologists have too frequently been ridiculed with strong efforts made to discredit them. Contention, distrust, reciprocation in kind, and lack of cooperation in the public interest is, of course, an inevitable consequence—especially when the control workers have made every effort to get the assigned wildlife workers fired or transferred. In our opinion a more blundering type of public relations would be hard to conceive.

Dr. Neely Turner,[1] a leading entomologist and with the Connecticut Agriculture Experiment Station at New Haven has appropriately pointed out to the control fraternity that entomologists have a responsibility with wildlife groups and nature lovers to cooperate and earnestly seek a reasonable solution to the present conflict between control workers and wildlife groups. He pointed out

[1] Address before the Entomological Society, Atlantic City, N.J., October 1959.

that "* * * regulatory entomologists of the States and Federal Government make the decisions that control or eradication is of more importance than hazard to wildlife. These entomologists function as prosecutor, judge and jury, tax assessor and collector, and sheriff to enforce their own orders. There is going to be trouble as long as this is the case * * *" Certainly these autocratic decisions which usually ignore, belittle, or deny any adverse effect on wildlife are indeed a major cause of conflict and friction between Federal, State, and local wildlife biologists and entomologists.

EFFECTS OF THE CONTROL PROGRAM ON WILDLIFE

Despite Agriculture's contention to the contrary, field studies by competent wildlife biologists employed by Federal and State agencies from Florida to Texas have shown that severe losses of wildlife have resulted from the use of chlorinated hydrocarbons, heptachlor and dieldrin, in the imported fire ant eradication program of the U.S. Department of Agriculture. Further, these studies conducted in different States, under differing conditions of vegetative cover, water relationships, and precipitation show that serious reduction of wildlife population continues even after two breeding seasons following treatment. We do not know how long the loss will continue.

In an east Texas area bird life decreased 92 to 97 percent in 2 weeks along ranch roads in treated areas. In acre plots studied, bird populations were reduced 85 percent and nesting success 89 percent. An Alabama 9,900-acre farm experienced an 88-percent decrease in its quail population following treatment and a Georgia area, even after two breeding seasons following poisoning, showed considerably less than half the normal number of quail found on adjacent and comparable untreated land.

IRRESPONSIBLE APPLICATION OF DANGEROUS POISONS

A serious criticism of Agriculture's program has been that areas having few or no fire ants have been treated by excessive aerial applications of heptachlor or dieldrin. Here the loss of wildlife has been excessive and quite unnecessary. The treatment has been so heavy that effective control is expected to last from 3 to 5 years and possibly longer. Treatment generally has been at 2 pounds of technical material per acre. Occasionally, heavier treatment has been applied. After 2 years of operation and after 1,700,000 acres of land have been sprayed with this stable, nonspecific and dangerous poison, Agriculture has announced that this application can be reduced by 37½ percent. To carry on control, some $4.8 million of Federal funds and somewhat lesser amounts of "cooperative" funds each from the States and property owners have been used. Of course we are glad that less poison will be applied, yet it is indeed unfortunate that sufficient sound research on formulations and dosages did not precede this gigantic operational program. The savings in funds and wildlife unnecessarily lost in this operational program probably could have paid for this and much other needed research on control. Savings made since the officials belatedly discovered that it was unnecessary to blanket woodland areas with dangerous toxicants also is a commendable improvement, yet it is alarming that this did not seem to be known until long after operational control had been carried out and thousands of acres of woodlands had been needlessly covered with poison.

The Federal control group has repeatedly informed the public that its fire ant eradication program is cooperative with the States and with private landowners. Even so, areas have been aerially treated contrary to the wishes of property owners. A recent public discussion in Georgia disclosed that Georgia farmers are not now contributing anything toward the application of chemical pesticides to control fire ants on their property. Federal and State funds, occasionally supplemented by some county and city funds, finance the program. Generally, it is the Federal appropriation that gives the principal financial support to the program. The original plan was to have the Federal Government, the State government and the individual farmer each contribute one-third of the cost which is now said to be averaging between $3 and $4 per acre. As conducted in Georgia the program is strictly a subsidy "handout" to farmers.

In Texas the U.S. Department of Agriculture has been so anxious to get public support for its tenuous program that not only is the poison benevolently given at no cost to any property owner who will use it (and regardless of the need) but, as an extra inducement, property owners are loaned grass seeders, also at no cost, to spread the poison. A newspaper account in the Beaumont

Journal of September 24, 1959, carrying the Government invitation, innocently or callously, assures the uninformed public that "heptachlor can be applied at no danger to livestock, pets, or birds. If care is taken to keep the poison out of ponds or water troughs in the area, there will be no ill effects. One application has been known to be effective for as long as five years." Obviously, there were practically no instructions for safe handling and no supervision of application rates or records of when, where or how the poisonous chemical was applied except to say that the application rate was "12½ pounds per acre." If this pesticide was the technical heptachlor it would be the equivalent of 187½ to 250 pounds of DDT per acre; if it represented the 10 percent material with its carrier it would be the equivalent of 1¼ pounds of technical heptachlor per acre, or 18¾ to 25 pounds of DDT per acre. Are the fieldmen of Agriculture so uninformed that they can assure the lay public that a poison spread on the ground that will be effective for 5 years and is the equivalent in toxicity of 18¾ to 25 pounds of DDT per acre is safe for livestock, pets, birds, or children? One pound of DDT last year placed out under carefully controlled conditions in a New Brunswick forest practically eliminated the year's salmon run, and a similar application was devastating to the brown trout and white fish in the upper Yellowstone watershed of Montana.

FIRE ANT NOT A THREAT TO AGRICULTURE, LIVESTOCK, OR HUMANS

Despite the U.S. Department of Agriculture's scare campaign and false propaganda, detailed scientific studies by competent entomologists in Alabama and elsewhere have shown that the fire ant is of such minor importance that it is not listed nor has ever been listed among the 20 most important economic insect pests in Alabama, the State with the heaviest fire ant population. Scientists have shown that the imported fire ant, which builds mounds that are a nuisance in certain farm areas and does inflict an unpleasant sting, is not a serious threat to farm crops, livestock, or wildlife. Neither is it a serious threat to human health. At times it is actually beneficial through its normal habit of feeding upon other insects.

Safe, effective, and economical methods of control have been worked out and are in operation in each of the major fire ant States and can be implemented without resorting to destructive aerial application of toxic insecticides, as has been the practice in the current USDA eradication program, with its resultant widespread losses of wildlife and hazards to livestock and perhaps to human health.

IS ERADICATION A PROBABILITY?

It is the opinion of most competent and reputable entomologists familiar with the problem that the total eradication of the imported fire ant in the United States is an objective almost impossible to obtain and particularly at a cost commensurate with expected benefits.

ZERO TOLERANCE FOR HEPTACHLOR

Despite the control workers repeated assurance that the toxicants used in the fire ant eradication are safe and are doing no significant damage, studies of the Food and Drug Administration recognize that there are serious hazards involved. In 1950 this agency prescribed a maximum tolerance of 0.1 part of heptachlor per million on potatoes and in 1955 prescribed tolerances of not to exceed 0.1 part per million of this same poison on 33 additional raw agricultural commodities and foods. After further experimentation and study the Food and Drug Administration announced in the Federal Register on October 27, 1959, that it proposes within 30 days to establish a zero tolerance for heptachlor and the even more toxic heptachlor epoxide on alfalfa, range, and pasture grasses, and various foods and vegetables. This zero tolerance simply means that hereafter no heptachlor can be permitted. Currently, there is a zero tolerance of such insecticides in milk, because of the hazard to human health. Obviously, the reason for including alfalfa and grasses in the zero tolerance limitations is to protect the public from ingesting heptachlor and its epoxide in meats. It is significant that the more study given these toxicants the more hazardous they appear to become. It should be remembered that secondary or side effects of these poisons always represent a delayed action. Consequently, these indirect effects that can be serious often do not show up for several years. A safe conservative approach is therefore advisable.

ALABAMA REFUSES TO PARTICIPATE FURTHER WITH AGRICULTURE ON THE FIRE ANT PROGRAM

The State of Alabama, where the imported fire ant first became established in North America some 40 years ago and which has far more infested acres than any other State, has by recent action of its legislature refused to appropriate funds for future State participation with the U.S. Department of Agriculture in the fire ant eradication program.

CONCLUSIONS

As a conclusion of the above facts, the Southeastern Association of Fish and Game Commissioners and the International Association of Game, Fish and Conservation Commissioners feel sincerely that it is in the broadest public interest to discontinue, for at least the time being, the special appropriation for the fire ant program and to prohibit the aerial application of heptachlor and dieldrin or chemicals of like toxicity until the effects upon wildlife resources and other forms of life can be more fully ascertained.

The associations feel it advisable that Congress increase appropriations for research into the effects of chemical pesticides on fish and wildlife and for basic entomological research. The latter would have the objective of finding selective chemicals, better and more extensive biological control methods, and developing means of controlling insect pests other than with chemicals.

These associations urge the Congress to enact legislation requiring more adequate testing and labeling of chemical pesticides with attention to their toxicity to wildlife and their effects upon the environment of man and of his domestic and wildlife resources, as well as direct or indirect effects upon man and his domestic animals. Further, it is urged that the Congress prescribe adequate controls upon federally sponsored or federally financed pest control programs for the purpose of preventing undue damage to wildlife resources and undue hazards to human health.

RESOLUTION OF THE SOUTHEASTERN ASSOCIATION OF GAME AND FISH COMMISSIONERS, MEETING AT BALTIMORE, MD., OCTOBER 27, 1959, CONCERNING DANGERS INVOLVED AND THE NEED FOR CAUTION IN THE USE OF CHEMICAL PESTICIDES AND WITH PARTICULAR REFERENCE TO THE IMPORTED FIRE ANT ERADICATION PROGRAM

Whereas field studies by competent wildlife biologists employed by Federal and State agencies have shown that severe losses of wildlife have resulted from the use of chlorinated hydrocarbons, heptachlor and dieldrin, in the imported fire ant eradication program of the U.S. Department of Agriculture in various Southern States; and

Whereas these field studies show that serious reduction of wildlife population continues 18 months after treatment of the land with heptachlor or dieldrin and the long-range effects upon wildlife species and other beneficial organisms are at this time very imperfectly known; and

Whereas scientific investigation by competent entomologists in Alabama and elsewhere has shown that the fire ant is of such minor importance that it is not listed among the 20 most important economic pests and inasmuch as scientists have shown that the imported fire ant, which builds mounds that are a nuisance in certain farm areas, is not a serious threat to farm crops, livestock, or wildlife; neither is it a serious threat to human health and is at times actually beneficial through its habit of feeding upon other insects; and

Whereas the Department of Agriculture, in conducting the fire ant program, has extended aerial application unnecessarily to areas not now infested or infested very lightly by the imported fire ant with totally unnecessary damage to wildlife; and

Whereas it is the opinion of many competent and reputable entomologists that the total eradication of the imported fire ant in the United States is an objective impossible to obtain and particularly at a cost commensurate with expected benefits; and

Whereas relatively safe and effective methods of controlling the imported fire ant have been developed and successfully used in the infested States without resort to widespread aerial application of toxic insecticides as has been the practice in the current USDA eradication program with its resultant widespread losses of wildlife and hazards to livestock and perhaps to human health; and

Whereas the control workers of Agriculture have usually failed to consult or cooperate with or to inform the State and Federal wildlife agencies which have primary responsibility for the conservation and management of fish and wildlife and has generally disputed the findings and ignored the recommendations of State and Federal wildlife agencies, and further has disseminated false and misleading information alleging serious destruction of livestock and wildlife by the fire ant; and

Whereas heptachlor and dieldrin and other chlorinated hydrocarbons are dangerous stable poisons that are known to affect man and are damaging livestock and are recognized as hazards by the Federal Food and Drug Administration which as far back as 1950 prescribed the maximum tolerance of 0.1 part of heptachlor per million on potatoes and in 1955 prescribed tolerances of not to exceed 0.1 part per million of heptachlor on 33 additional raw agricultural commodities and foods; and after further experimentation and study announced in the Federal Register on October 27, 1959, that it proposes within 30 days to establish a zero tolerance for heptachlor and the even more toxic heptachlor epoxide on alfalfa, range, and pasture grasses, and various foods and vegetables; and has established a zero tolerance for such insecticides in milk because of the hazard to human health resulting from the deposit of chlorinated hydrocarbons, including heptachlor and dieldrin, by farm animals, and

Whereas the State of Alabama, where the imported fire ant first became established in North America some 40 years ago and which has far more infested acres than any other State, has by recent action of its legislature refused to appropriate funds for future State participation with the U.S. Department of Agriculture in the fire ant eradication program: Therefore be it

Resolved, That the Southeastern Association of State Game and Fish Commissioners petition the Congress to discontinue appropriations for the imported fire ant program and to prohibit the aerial application of heptachlor or dieldrin or chemicals of like toxicity until the effects upon wildlife resources and other forms of life can be more fully ascertained: Be it further

Resolved, That this association requests Congress to increase appropriations for research into the effects of chemical pesticides on fish and wildlife and for basic entomological research. The latter would have the objective of finding selective chemicals, better and more extensive biological control methods, and developing means of controlling insect pests other than with chemicals: Be it further

Resolved, This association urges Congress to enact legislation requiring more adequate testing and labeling of chemical pesticides with attention to their toxicity to wildlife and their effect upon man's environment, as well as their direct toxicity to man, and to provide adequate control upon federally sponsored or federally financed pest control programs for the purpose of preventing undue damage to wildlife resources and undue hazards to human health.

Mr. MILLER. Are there any questions? Mr. Lennon, do you have any questions?

Mr. LENNON. I have no questions.

Mr. MILLER. Mr. Van Pelt?

Mr. VAN PELT. I have no questions.

Mr. MILLER. Mr. Curtin?

Mr. CURTIN. I have no questions.

Mr. MILLER. Mr. Zincke?

Mr. ZINCKE. I have no questions.

Mr. MILLER. I want to compliment you on making a very fine witness, Mrs. Wolf.

Mrs. WOLF. Thank you, Mr. Chairman.

Mr. MILLER. Mrs. Wolf, as long as you are representing the author of the bill, will you not come up and sit at the table with us, please?

In the interest of time for two gentlemen who have come a long way, I want to call on Dr. George J. Wallace, wildlife research specialist of Michigan State University.

Dr. Wallace?

STATEMENT OF GEORGE J. WALLACE, PROFESSOR OF ZOOLOGY, MICHIGAN STATE UNIVERSITY, EAST LANSING, MICH.

Dr. WALLACE. Mr. Chairman, I wish to present some firsthand evidence from our midwestern Dutch elm-robin dilemma that may prove useful in your deliberations. This spring, at East Lansing, Mich., we are experiencing our sixth annual dieoff of robins and other songbirds accompanying the treatment of the elms with high concentrations of DDT for Dutch elm disease. This has happened each year since 1955. Each year we get an influx of new birds and each year we watch them die. The effect on the robin population in particular has been carefully measured.

In 1954, the year before the Dutch elm program started in earnest, we had an estimated population of at least one pair per acre on the north campus of the university. I had a doctorate student working on robin populations at that time. By the end of his study in June 1957, he could find only scattered adults and one young on an area that in 1954 supported a June-July population of nearly 1,000 robins. In the spring of 1958 we had several successive influxes of new robins, but by the end of the breeding season they were virtually eliminated and we had the dead birds to prove that they did not "migrate" away, as some people claimed.

In the spring of 1959 we took 30 censuses or counts of robins on the north campus. About 10 pairs tried unsuccessfully to establish themselves in mid-April, and as they died off more moved in to take over the vacated territories. Before the end of June some 50 dead or dying robins had been turned in or reported to me (presumably many others were not retrieved or reported) from an area where the maximum population at any one time was about 10 pairs.

This clearly shows that due to infiltrations and replacements during the breeding season, the total loss in a Dutch elm area may be several times greater than the original population and that it serves as a deathtrap for more birds than are present at any one time.

The situation this spring (1960) is repeating the 1959 history. On April 18, before any dead robins were found, a team of census takers, working over assigned routes, counted 36 robins. The following week the count was down to 25, and the following week (April 30) down to 15. Fourteen dead and dying robins were picked up during this interim, most of them watched dying with the tremoring and convulsions associated with chemical poisoning. Hence, approximately half our campus population of robins are already dead by the end of April. The rest, along with numerous replacements, may be expected to die in May and June.

We are frequently asked to prove, by chemical analyses, that this high mortality on our campus, and in more than 50 other communities with a Dutch elm disease control program, is due to the DDT or other pesticide used in control operations. This may be asking the impossible. It would take several million dollars, the services of many skilled chemists, and elaborate laboratory setups to do a thorough testing job on adequate samples of the more than 80 different species of birds that have been found dead and dying following control operations for Dutch elm disease.

But we have made a good start on the robins, I think. During the past year our analyst, working under a small grant from the Fish and Wildlife Service, has analyzed 44 robins more or less completely, measuring the accumulations of DDT in such tissues as the brain, breast muscle, heart, liver, kidney, and sometimes the gonads.

I can read some of these impressive figures, if you wish, but perhaps it will suffice to say that to date he has found only one completely negative robin (an off-campus bird) and that while several others (including two young birds) had apparently negligible amounts, the majority, or about 40 in all, had concentrations equal to or greater (sometimes 10 times greater) than the accumulations found to be lethal to pheasants and quail in the well-known experiments carried out by the technical personnel of the Fish and Wildlife Service at the Patuxent Research Center.

It may be of interest to mention the accumulations that show up in the gonads of a few breeding birds that have been tested. Ten males had amounts ranging from 30 to 109 parts per million in the testes, and two females had 151 and 211 parts per million respectively in the egg follicles in their ovaries. It would take a long-term histological and chemical study to demonstrate the effects of these high dosages on spermatogenesis and oogenesis in birds or anything else.

That concludes my statement.

Mr. MILLER. What would be the safe limit in robins or birds? You may have testified to that and I missed it.

Dr. WALLACE. We do not know. Generally it has been considered that 1 pound per acre has been safe but these tests were made 10 or 15 years ago before present accumulations had developed in the soil and in plant and animal tissues.

We have used the 1 pound per acre rate on our campus for mosquito control, but there is no way of separating the effects of this from the Dutch elm program. That is, we have so many different overlapping programs. We need to do more work on this but we are quite sure that this robin mortality is due to accumulations in the soil which earthworms take up and actually concentrate; then the robins feeding on earthworms get it in this way. But there are 50 to 100 other species which must get it some other way, either through contaminated soil organisms or from foraging over the bark of sprayed trees.

Then, among the leaf gleaners, we have many examples of dead and dying birds not only in the Dutch elm program but also in mosquito programs where only 1 pound per acre is supposed to have been used. Possibly these are accumulations from feeding on plant and animal tissues where the accumulations have built up over a long period of time.

Mr. MILLER. Have any studies been made to show what effect eating of birds with such concentrations might have upon human beings?

Dr. WALLACE. No, I do not think there have been. I do not know anything about that angle.

I am very much interested in this because of possible secondary poisoning in predatory birds.

We have found hawks and owls that exhibit these convulsions, including great horned owls, screech owls, red-shouldered hawks, sparrow hawks, and a marsh hawk.

Mr. MILLER. Those are all predators.

Dr. WALLACE. Yes, and they must be getting secondary poisoning from something they are eating, dead robins or possibly mice which have accumulated reserves in their livers. The liver is apparently a storage organ in the species we have tested so far.

It might not be lethal, but what happens to a hawk or owl or a human being which eats the liver which has stored up these accumulations?

These things we do not know but it seems to me that they are interesting.

Mr. MILLER. All of this category of hawks and owls that you have mentioned are carnivorous birds and live on other forms of birdlife. They do not get their food directly from trees or grains.

Dr. WALLACE. They eat birds and animals.

Mr. MILLER. They live off of dead birds.

Dr. WALLACE. Yes. They eat both dead and living animals. I think the screech owl is a particularly interesting situation. I know of at least seven that have been found in tremoring condition.

We analyzed one of them and unfortunately did not prove anything. It had DDT but not a high concentration and it was not in all organs. The highest accumulation (33 p.p.m.) was in the heart and we do not know what that does to the heart.

We had a chickadee that had 122, I think it was, micrograms per gram in its heart. That is roughly five times the breast muscle accumulation required to kill a pheasant in captivity, but it is not a very good argument to say that because 22 micrograms per gram is lethal to a pheasant in captivity that five times that amount in the heart of a chickadee would be lethal. It seems like it might be.

Mr. MILLER. As you say, you are not giving these as examples but it indicates that further research in this field is necessary and that, unless this research is done, we do not know what effect it might have.

Dr. WALLACE. We need this research.

Mr. MILLER. It is a good indication. It shows the way the wind is blowing anyway.

Mr. Dingell?

Mr. DINGELL. Thank you, Mr. Chairman.

Doctor, I was particularly pleased to find that we had a representative of our great Michigan State University here today.

Dr. WALLACE. Thank you.

Mr. DINGELL. It was an honor to hear your remarks.

I wonder if you would direct your attention to one thing, that most of these chemical pesticides or chlorinated hydrocarbons are oil and fat soluble; is that not a fact? They have a tendency to concentrate in the oils in the bodies of wildlife and in the bodies of human beings also, and in so concentrating they generally tend to pass on in a more concentrated form to each? They go from the fats and oils in earth worms to possibly the robins or to some of the other birds that would eat worms and a man might eat these birds. They might go into the oils and fats in the bodies of a duck and these would tend to concentrate in enormous concentration in the body of the ultimate consumer who might be the man, and studies I believe have indicated that in cases of this sort that very low DDT concentrations on fruits and vegetables in just a few parts per million will ultimately store up in

the fats in the human body to several hundred parts which is approaching the lethal dose; is that a fact?

Dr. WALLACE. I think probably mammals have a greater capacity both for storage without its becoming lethal and also for elimination. There may be a difference in the physiology of elimination between a bird and a mammal, because a bird has an entirely different kidney system whereby liquid wastes are not excreted to a great extent but are reabsorbed.

We know that mammals excrete through the kidneys quite a bit of DDT material that passes through the system. It may well be that birds do not have this capacity to eliminate as much of it as mammals do because liquid wastes in birds are reabsorbed and returned to the bloodstream.

Mr. DINGELL. Is it fair to say that in addition to destroying existing populations that these toxic sprays have a capacity for reducing the reproduction and making a weaker strain?

Dr. WALLACE. All our nesting robins have failed but, of course, most of that is due to one or the other of the pair dying before the nesting cycle is complete. But we do have records of robins and other birds building nests and laying no eggs, and others laying eggs and incubating them but not hatching them. We have one record of a robin that sat on its eggs faithfully for 21 days and they did not hatch. The normal incubation period is 13 days.

Of course, this could happen in untreated areas, and does. We do not have very good information on whether or not the lack of hatching of the eggs is due to accumulations of DDT in the gonads of the males or females, because in most cases one or the other died before the end of the nesting season and, of course, the nest was then deserted. But our analyses are showing high concentrations of DDT in the testes and ovaries of breeding birds.

Mr. DINGELL. Were you aware of the Japanese beetle control program conducted by your Department of Agriculture at home?

Dr. WALLACE. Yes, but I am only an outside observer. I had a lot of calls on that from the Detroit area.

Mr. DINGELL. What were your observations on that particular program?

Dr. WALLACE. I took no personal observations. The Conservation Department personnel did, but that was during the deer season when they were very busy and not many observations were made.

This is an example of where this bill would help. A research man in the Conservation Department said he did not know anything about the program until he read it in the paper. They would have liked to have made studies, because it was in a good pheasant area, but they did not know about it in time. They did get some dead birds and sent them to the Patuxent Research Refuge and I did, too. I think I sent in a dozen specimens from the Detroit area but I never had a report on them.

Another angle which I might mention is that we found out later in connection with these birds that were sent in to Patuxent to be tested for aldrin that heptachlor had been used and none of us knew anything about it.

I do not know how these aldrin tests are conducted, but our DDT tests are very specific and do not detect anything except DDT. You

see the trouble analysts would be in if they were testing for aldrin in the birds that died from heptachlor.

I think those things should be known ahead of time rather than found out afterward, and I believe this bill would take care of that situation.

Mr. DINGELL. Thank you very much, Doctor. Your testimony has been most helpful.

Mr. MILLER. Mr. Van Pelt?

Mr. VAN PELT. Is this area around the campus the only area that you have had experience with?

Dr. WALLACE. No. The situation may well be worse on the campus because we have about 2,300 elms.

In East Lansing, the program has gone on in about the same way and we get quite a lot of dead birds and reports of dead birds. We have tested some of the specimens and the situation is the same. They have high accumulations of DDT.

I think we have analyzed 8 East Lansing birds and 10 Lansing birds with, I think, no negative specimens among them and they have just as high concentrations in their tissues as do the campus birds.

Mr. VAN PELT. Are they from trees in all metropolitan areas?

Dr. WALLACE. I have had reports of similar die-offs in robins, not as completely measured as ours, but at least reports of dead and dying birds, usually robins, from other communities in Michigan, as well as from Wisconsin, Ohio, Illinois, and Indiana.

Mr. VAN PELT. You are referring to a local program, are you not?

Dr. WALLACE. Yes. That is, the Dutch elm programs are usually community projects.

Mr. VAN PELT. Would you have the local authorities come to Fish and Wildlife Service?

Dr. WALLACE. Such cooperation would be a good thing. There is a Federal Dutch elm research laboratory, a new one, in Delaware, Ohio, and they are working very hard on new methods of control. They also helped work out the original methods of control that are used in these various community programs. Usually the Dutch elm disease program is a community affair financed by the community, but the State departments, at least in Michigan, and I think other States, advise them on procedures and also test elm twigs and materials for the presence of the fungus which causes the disease. Federal authorities are also in on it to a certain extent but chiefly in a research and advisory capacity, I think.

Mr. VAN PELT. I appreciate your interest and your sincerity in this but I just cannot tie in your testimony with H.R. 11502.

Dr. WALLACE. I brought that up before I came and we felt that the testimony chiefly is an indication of what these things do.

The Federal Government uses DDT in similar ways and so do the State programs but, as you say, this Dutch elm business is largely a community program as far as financing and carrying out the programs are concerned.

Mr. VAN PELT. That is all, Mr. Chairman.

Mr. MILLER. Mr. Lennon?

Mr. LENNON. Doctor, what type of chemical or insecticide is used on the Dutch elm trees from the East Lansing area, particularly the campus?

Dr. WALLACE. DDT entirely. Some have recommended the use of methoxychlor in place of DDT because methoxychlor is much less toxic to warmblooded animals. According to tests it would be much safer to use than DDT but it costs more and does not last as long. I know of no communities in Michigan, although there are several in Illinois, that have tried methoxychlor to see if that can be substituted for DDT.

Mr. LENNON. The program of spraying the Dutch elm tree in that area has been going on since 1955.

Dr. WALLACE. On the campus and I think in East Lansing, but it started earlier in Detroit.

Mr. LENNON. You are convinced that the lethal effects on bird life are from the DDT?

Dr. WALLACE. Yes.

Mr. LENNON. Have you taken it up with the community that handles the spraying of these trees with the insecticide DDT?

Dr. WALLACE. I have tried to and many other people have, but have gotten nowhere until this last year. Now we have a committee to study this further.

Mr. LENNON. Would the passage of this bill provide any measure of assistance to the problem that you have on the campus or over your State generally?

Dr. WALLACE. In essence, I suppose we are doing now what this bill is trying to do on the Federal level. We have formed a committee and they have actually put me, a bird lover, on the committee with other wildlife biologists who are interested in the hazards to wildlife in these programs. Thus we can study the whole thing in advance.

Mr. LENNON. This chemical has been recommended by the Department and you say the community is not in a position to pay the additional cost?

Dr. WALLACE. Technicians say that methoxychlor would not be as effective as DDT because it does not last as long.

Mr. LENNON. But it would save the birds life?

Dr. WALLACE. Yes; that is right.

Mr. LENNON. Like the gentleman a few minutes ago, I am trying to find out how this particular legislation would be of assistance to you and the State of Michigan and the States adjoining you who have had this particular problem.

Dr. WALLACE. That bothers me, too, but in a way it would serve as a model for what the communities are to do. Instead of going ahead with these programs without any consultation with wildlife biologists at all, they ought to get together.

Mr. LENNON. This would only require an officer or agency of the Federal Government to contact the wildlife agency before it provided any financial or other assistance for "any program involving the use of any chemical, insecticide, herbicide, fungicide, rodenticide, or other chemical."

Dr. WALLACE. I believe there is a clause in the bill asking for cooperation with the State agencies. Possibly the university would be considered a State agency. I think that means the State department of agriculture and the State conservation departments and the wildlife divisions.

Mr. LENNON. It says, "Before such consultation occurs, the Federal office or agency"—who proposes to use such an insecticide—"shall furnish the U.S. Fish and Wildlife Service and each such State agency * * *" That would be, of course, its counterpart at the State level.

How would that help the situation in Michigan?

Dr. WALLACE. The communities often but not always follow the recommendations of the State.

Mr. LENNON. In other words, is your community carrying on this program following the recommendation of the Fish and Wildlife Service at the State level in Michigan?

Dr. WALLACE. No; they are following the recommendations of the State department of agriculture.

Mr. LENNON. This does not go to the State department of agriculture. It goes to the counterpart at the State level of our U.S. Fish and Wildlife Service. Maybe it ought to go to the departments of agriculture of the several States.

Mr. MILLER. Perhaps it should. On the other hand, in the question of the case he cited here where they were supposed to use one chemical but used another at least the conservation and fish and wildlife people would be apprised of what is taking place. It would give them a chance to make the case to the Department of Agriculture against any chemical that was going to be used. It is not a cureall as pointed out.

Mr. LENNON. Your State has recommended the use of a chemical not as toxic or lethal as DDT?

Dr. WALLACE. I am not sure that the State recommends it.

Mr. LENNON. What agency recommended that?

Dr. WALLACE. The Federal bulletin on Dutch elm disease control.

Mr. LENNON. Who made the recommendation to your community that you use this other type of insecticide?

Dr. WALLACE. DDT has always been used in Michigan and they have never substituted the more expensive one.

Mr. MILLER. You said the other one was more expensive than DDT. Who made that recommendation?

Mr. LENNON. Who made that recommendation?

Dr. WALLACE. The Fish and Wildlife Service.

Mr. LENNON. At the Federal level?

Dr. WALLACE. No, excuse me. Tests on the toxicity of methoxychlor to wildlife have been made by the Fish and Wildlife Service, but I am pretty sure the investigations on its use for Dutch elm disease were made by the USDA.

Mr. MILLER. The Department itself?

Dr. WALLACE. I believe they did also point out that it would cost more and our entomologists added to that that they did not think it would last as long.

The problem would be that methoxychlor is not only more expensive, more than double the cost of DDT, but you might have to put it on twice a year instead of once. Now they usually limit these applications to one treatment a year either in the fall or in the spring. Formerly they used two treatments.

Mr. LENNON. It always comes back to the cost.

Thank you, Doctor. It is an interesting subject.

Mr. MILLER. Mr. Curtin?

Mr. CURTIN. Doctor, do you know whether birds can build up a resistance to these poisons?

Dr. WALLACE. That question always comes up and I do not know. I am afraid what is happening is that starlings, sparrows, grackles, and some of the less desirable birds, which are more adaptable in their food habits and are not necessarily dependent on the insects, are more resistant than the insectivorous birds.

Our campus has been taken over almost entirely by house sparrows, grackles, and starlings. We do not know how much of it is due to more resistance. Some tests in Wisconsin with starlings show that they are much more resistant to DDT than are robins.

In one house sparrow test we found the highest accumulation in the brain of any of the 71 birds that we have tested so far. Of course, you cannot prove much by one bird but I think it does support the suggestion that many people have made that house sparrows are more tolerant to DDT even when they accumulate it.

In the first place, they are not living in a way where they would necessarily pick it up as fast, and when they do pick it up, they may be able to accumulate more of it than a robin can.

This is a selective thing and discriminates against the insectivorous birds and does not really favor but seems to have resulted in a buildup of the grackle, starling, and house sparrow populations in the communities that have had these programs.

Really that does not answer your question. We do not know whether a robin over a period of years is going to build up a resistance to DDT as insects do.

Mr. CURTIN. Are studies being made on that subject, do you know?

Dr. WALLACE. If your whole population dies, how can you get a resistance built up? The situation we get on our campus is that each spring we get an entirely new population of robins which presumably has not been exposed to the insecticide before. Then they die during the spring, and leave no descendants. If there were survivors there might be a possibility that gradually over the generations they could build up a resistance.

Mr. CURTIN. This insecticide is being used all over the country so that probably some of those robins got it over the past year.

Dr. WALLACE. Some which pick up sublethal doses could conceivably develop a resistant strain of robins.

Mr. CURTIN. Thank you.

That is all, Mr. Chairman.

Mr. MILLER. You had a question?

Mr. DINGELL. Yes, Mr. Chairman.

I have here a study of the spraying of the Japanese beetle program in the Michigan Department of Agriculture and their own report indicates that on some greased aluminum foil panels that they used to check the aerial spraying they found this on several samples.

First, they found the weight of samples per square foot was 2.3021 grams. The total loading of pounds per acre was 29.3. Apparently this includes thinners and cutting substances.

The amount of theoretical aldrin in pounds per acre in the first instance was 2.93.

On the second panel they found it was a half a pound per acre, and on the third test panel they found they had 10.08 pounds of theoretical

aldrin; in other words, a concentration of over 10 pounds per acre on the third one.

The average of the three samples was 13.51 and the amount of theoretical pure aldrin was 4.50 pounds per acre of pure aldrin theoretically present.

Does that indicate an evenness of spraying?

Mr. WALLACE. It is an uneven distribution.

Mr. DINGELL. Does it indicate a dangerous situation for wildlife and humans?

Mr. WALLACE. It seems where those concentrations occur that it would be. Actually, with aldrin, I believe those lower amounts are pretty lethal.

Mr. DINGELL. Even a half pound?

Dr. WALLACE. I do not know. Certainly 2 pounds per acre is. According to some tests made on quail at Patuxent in aldrin, I believe they said it was up to 100 times as toxic as DDT, more toxic even than either dieldrin or heptachlor.

Mr. DINGELL. Thank you.

Mr. MILLER. Doctor, what this indicates as far as I follow you is that no matter who is responsible for placing this, whether the Federal Government, State, or community does it, it is still lethal and can have a bad effect, so that the matter should receive attention from either the Fish and Wildlife Service or Department of Agriculture. Someone should do a lot of investigating in this field before we go on with it. We do not like what happened last year in the cranberry situation, whether it was right or wrong. There is a field that needs a lot of work done.

Dr. WALLACE. That is right.

Mr. MILLER. It needs a lot of plowing done before we begin to talk about the crop.

Dr. WALLACE. I am all for more cooperation and for more investigation.

Mr. MILLER. Thank you very much, Doctor.

I want to call on Mr. Carl W. Buchheister and Mr. Charles Callison, because Mr. Buchheister has to get out of town.

Is Mr. Frye here?

Mr. FRYE. Yes, sir.

Mr. MILLER. Do you have to get away today?

Mr. FRYE. Yes, sir.

STATEMENTS OF CARL W. BUCHHEISTER, PRESIDENT, AND CHARLES H. CALLISON, ASSISTANT TO THE PRESIDENT, NATIONAL AUDUBON SOCIETY, NEW YORK, N.Y.

Mr. BUCHHEISTER. Mr. Chairman, I appreciate that you give me the opportunity to testify now.

The National Audubon Society has for many years been actively concerned with the biological problems caused by the increasing use of chemical pesticides. Our society has for 3 years employed an experienced biologist, Mr. Harold Peters, of Atlanta, Ga., to make an extensive study of these problems. Mr. Peters, a trained entomologist as well as a wildlife biologist, is especially well qualified to conduct such a study. Before his retirement from Federal service he was in

charge of mourning dove research for the U.S. Fish and Wildlife Service.

It is upon the basis of Mr. Peters' studies, and upon the findings of other competent biologists serving on the staff of the society and with affiliated groups, or whose work has been available for our study, that we present our recommendations with respect to H.R. 11502.

The National Audubon Society strongly advocates the enactment of legislation embodying the principles of H.R. 11502. We can back up our recommendations with an array of documented evidence of the damage that has been done needlessly to fish and wildlife resources through Government programs using chemical pesticides. In most cases the damage could have been avoided even if the pesticidal program were necessary. The damages occurred because chemicals too toxic were applied, or were applied in larger quantities than necessary, or were applied in the wrong places, in the wrong seasons, or by the wrong devices.

Mr. MILLER. I wonder if you could summarize your statement?

Mr. BUCHHEISTER. I would like to summarize it to say that the National Audubon Society is not against chemicals and not against all chemical programs.

We realize that, with regard to insect and also with regard to plant-life, that chemicals can be used effectively, but the sum and substance of what we are here today to say is that we think that Congressman Wolf's bill is an excellent bill in this: that it does provide that before there is a large extensive or massive spraying campaign by a Government bureau, there be advance consultation.

We feel that, had that been the case in the case with the imported fire ant eradication program in the seven or nine Southeastern States, that the U.S. Fish and Wildlife Service could have pointed out to the Plant Pest Control Division of the Department of Agriculture that this application of dieldrin and heptachlor in the amounts used and the way it was applied could have had a lethal effect on wildlife.

As far as we know, and from all the asking that we have done, no such consultation was held.

Without taking any more time, Mr. Chairman, as Dr. Wallace has just pointed out, and I think very ably demonstrated from studies made year after year in the field, we are dealing with highly toxic chemicals and we are broadcasting them in many areas and we do have these problems.

Our organization feels this: that before we apply these highly toxic chemicals to any large extent in Government programs that there should be advance consultation.

Mr. MILLER. And checks on them.

Mr. BUCHHEISTER. And checks on them. That is what we stand for. We feel that this bill provides for that, and the last point I may say about it is this: that if the Government agencies, the various Federal departments that use the pesticides are willing to cooperate and coordinate and get information and advice from each other, then they certainly ought to be in favor of this legislation because that is what it provides.

(The statement follows:)

STATEMENT BY NATIONAL AUDUBON SOCIETY, NEW YORK, N.Y., ON H.R. 11502, THE PROPOSED CHEMICAL PESTICIDES COORDINATION ACT

The National Audubon Society has for many years been actively concerned with the biological problems caused by the increasing use of chemical pesticides. Our society has for 3 years employed an experienced biologist, Mr. Harold Peters, of Atlanta, Ga., to make an extensive study of these problems. Mr. Peters, a trained entomologist as well as a wildlife biologist, is especially well qualified to conduct such a study. Before his retirement from Federal service he was in charge of mourning dove research for the U.S. Fish and Wildlife Service.

It is upon the basis of Mr. Peters' studies, and upon the findings of other competent biologists serving on the staff of the society and with affiliated groups, or whose work has been available for our study, that we present our recommendations with respect to H.R. 11502.

The National Audubon Society strongly advocates the enactment of legislation embodying the principles of H.R. 11502. We can back up our recommendations with an array of documented evidence of the damage that has been done needlessly to fish and wildlife resources through Government programs using chemical pesticides. In most cases the damage could have been avoided even if the pesticidal program were necessary. The damages occurred because chemicals too toxic were applied, or were applied in larger quantities than necessary, or were applied in the wrong places, in the wrong seasons, or by the wrong devices.

In other cases, a sober, second look at the situation led to the conclusion that the damage or problem caused by the alleged pest animal or pest plant wasn't serious enough in the first place to warrant laying down a lethal fog of toxic chemicals which affect many other living things besides the target organism.

The documented evidence of wildlife damages probably will be presented here by Department of the Interior officials and by other witnesses. If such evidence is not presented, the National Audubon Society will submit it, with your permission, for the record.

We wish now only to cite a few examples in rebuttal of an argument almost certain to be made by opponents of this legislation. This will be the argument that Federal agencies responsible for programs using chemical pesticides have in the past consulted with the wildlife agencies, will in the future consult with them, and that therefore this legislation is unnecessary. We hope the Plant Pest Control Division of the U.S. Department of Agriculture has the good grace itself not to make such an argument, because the argument is amply refuted by the Division's own record of performance.

Our society and other conservation organizations watching the program aimed at the imported fire ant, for example, have noted that USDA officials, when questioned, will invariably say that, yes, the fire ant operations have been carried out "in cooperation with" or "after consultation with" wildlife officials. Upon investigation we have found that in general, in the operations of the fire ant program, the recommendations of the wildlife agencies have been ridiculed publicly and usually ignored. Such consultation as has existed has usually been after the fact.

With respect to the fire ant program, the Southeastern Association of Game and Fish Commissioners, representing the State wildlife agencies in the affected States, had this to say in an official resolution adopted at Baltimore, Md., October 27, 1959:

"The control workers of Agriculture have usually failed to consult or cooperate with or to inform the State and Federal wildlife agencies which have primary responsibility for the conservation and management of fish and wildlife and have generally disputed the findings and ignored the recommendations of State and Federal wildlife agencies; and further have disseminated false and misleading information alleging serious destruction of livestock and wildlife by the fire ant."

As a very recent example of USDA refusal to recognize, or to admit, the facts, I quote from testimony on the fire ant program presented April 19, 1960, before the Senate Subcommittee on Agricultural Appropriations. Senator Holland of Florida inquired:

"We have had very many objections not only from the fish and game people but also from special groups, like the Audubon groups. They say that they have found thousands and thousands of dead birds, song birds, both migratory birds and resident birds. Have you had any complaints?"

To which Mr. Popham of Agricultural Research Service replied:

"Yes; we have heard it, but we have not been able to confirm those heavy losses. There have been some losses associated with the treatment usually traceable to water, perhaps from certain storms following treatment where the birds were able to get some poison from the water. But as we have followed the program over a period of 2 years, even in areas where there have been some noticeable losses, recovery has been very rapid."

This pattern of noncooperation and nonconsultation is by no means confined to the controversial fire ant program. Within the past few weeks the Illinois Department of Agriculture has sprayed 25,000 acres of farmland near Shelden, Ill., with the extremely toxic chemical Aldrin in an attempt to "eradicate" a local infestation of Japanese beetles. This operation, we are told, was carried out with the technical and financial assistance of the USDA Plant Past Control Division. Interestingly this was the third such aerial spraying operation using chlorinated hydrocarbon insecticides since 1954 in this same Shelden, Ill., area, and each of the preceding treatments also was supposed to "eradicate" the beetles.

Despite the fact the first such applications, using Dieldren on 4,000 acres in 1954 and in 1955, resulted in elimination of the pheasants, decimation of other birdlife and serious reduction of small mammals (documented in Journal of Wildlife Management, October 1959; Scott, Willis and Ellis, Illinois Natural History Survey, Urbana, Ill.), neither the U.S. Fish and Wildlife Service nor the Illinois Game Management Division was consulted in advance about the recent operation, which spread the toxic chemical Aldrin over 25,000 acres.

Aldrin is rated by the Government to be considerably more toxic even than Dieldren, the chemical which decimated wildlife on the Sheldon area in 1954. Why was Aldrin used this year? Under questioning at a meeting of the Midwest section of the Entomological Society in Milwaukee, March 24, 1960, an official of the Illinois Department of Agriculture said the more deadly chemical was chosen because the supplier of Aldrin was low bidder for the job.

One wonders what even more poisonous chemical will be used 2 or 3 years hence in the same area, again to "eradicate" the Japanese beetle, if some procedural controls are not placed on the insect-control agencies to safeguard the public interest in biological resources.

It is our belief that not all the results of a Pesticides Coordination Act would be merely to prevent damages to wildlife. Some results could be a net gain in wildlife resources. We recognize chemical controls, if properly and safely used, to be a useful tool under certain circumstances. Certain herbicides have been used in Michigan and elsewhere to improve natural feeding conditions for deer in forested areas. In other operations, blanket herbicidal spraying has ruined wildlife habitat. The lesson is that if intelligently applied, after careful experimentation and careful selection of the materials to be used and the pattern of application, herbicides may be employed in managed forests to increase timber production and at the same time to improve wildlife habitat. The same principle may be gainfully employed on some of the western range lands.

If the bureaus carrying out the control operations are sincere in wishing to consult and cooperate with the wildlife agencies, then they cannot reasonably object to legislation requiring them to do so.

One last comment, but an important point: The execution of such a law as the one proposed in H.R. 11502 is going to cost some money. But in the long run, it is bound to save money for the government by reducing or eliminating unwise pesticidal programs. Officials of the Department of Agriculture now say they can achieve control of the imported fire ant by applying only one-half pound per acre, but they came to this conclusion reluctantly in the face of outraged public protest against the killing of wildlife and after the Food and Drug Administration established a zero tolerance for heptachlor residues in foodcrops. They had already spread 2 pounds per acre over 1¾ million acres at taxpayers' expense.

Mr. Chairman, although the language of H.R. 11502 doubtlessly can be improved, we think the principle upon which it is based and the procedures it proposes are essentially sound.

The National Audubon Society would have preferred a stronger bill but we endorse this one as a good step in the right direction.

If strengthening amendments are considered, we would recommend one providing for a public hearing, such public hearing to be held upon the request of either the control agency or the wildlife agencies, in event of unresolved controversy over the conduct of any proposed chemical pesticidal operation.

We thank you for this opportunity to present our views.

Mr. MILLER. Do you have any questions?

Mr. DINGELL. Mr. Chairman, there are some questions, I think. I have been reading the witness' statement and I have been very much impressed.

Your remarks were, I think, particularly apropos in your statement on page 2 on the fire ant program with regard to the statement that the Southeastern Association of Game & Fish Commissioners representing the State wildlife agencies in respect to States had this to say in an official resolution adopted at Baltimore, Md., and I am quoting from your statement:

The control workers of Agriculture have usually failed to consult or cooperate with or to inform the State and Federal wildlife agencies which have primary responsibility for the conservation and management of fish and wildlife and have generally disputed the findings and ignored the recommendations of State and Federal wildlife agencies; and further have disseminated false and misleading information alleging serious destruction of livestock and wildlife by the fire ant.

Would you like to elaborate on that?

Mr. BUCHHEISTER. I can say, Mr. Congressman, that that statement was compiled after a great deal of consideration by those involved in this and we do happen to know that we cannot find any real record of any advance consultation on the part of these people.

I cannot exactly give you right now a case in point as far as the time and date is concerned, but I have been to hearings, meetings in which this was discussed, and where members or representatives of the Department of Agriculture were present and others were present; and, granted that very often these meetings became somewhat acrimonious, there was a good bit of these findings that we spoke about of wildlife having been killed.

Very often, when these statements were made, representatives of control bureaus got up and spoke about them as if they were false and misleading and in such a way that it was almost as if to belittle.

It would be impossible to take the time of the committee today but we could give you plenty of evidence.

Mr. DINGELL. Would you submit some for the committee, please?

Mr. BUCHHEISTER. We could submit records for the committee about the losses in wildlife from the fire-ant program.

Mr. DINGELL. Would you submit this for the record—particularly on this fire-ant program?

Mr. BUCHHEISTER. We will.

(The information follows:)

FIRE ANT FIREWORKS

(By Charles D. Kelley, secretary, Alabama Wildlife Federation, presented to the 23d Annual Convention, National Wildlife Federation, 1959)

My purpose here today is to discuss the imported fire ant program, a program that was ill advised, hastily conceived, poorly planned, and a glaring example of riding roughshod over the responsibilities of other public and private agencies. From its conception, the program has been one of exaggerations and misrepresentations, combined with the deliberate withholding of known facts.

In the presentation to Congress to obtain Federal funds for the imported fire ant program, such statements as these were presented:

1. The imported fire ant is a serious pest of crops, livestock, and wildlife, in addition to pastures, lawns, and recreational areas.

2. Unless this ant menace is eliminated, the entire agriculture, dairy, and nursery industry of a great number of our parishes now infested by the ants may face bankruptcy.

3. This pestilence threatens to become of even more serious economic consequence than the boll weevil.

4. The tremendous damages being done to our farmland by the imported fire ant have reached the point of becoming a major disaster to the economy and efficiency of our agriculture.

5. Its destructive power may, this year, cause one of the biggest financial losses ever suffered in the South.

6. Worst insect plague in the South's history.

7. Estimated damage in 37 Alabama counties this year at more than $24 million.

8. That damage would amount to more than $100 million a year in Alabama for the next 10 years if the fire ants are not brought under control.

In an attempt to alarm the public, widespread scare campaigns have been conducted through the popular press and other media of public communications, even to the extent of statements such as, "No one knows how many people have been killed by ants," and, "It would be ironic if we spent millions to fight communism and then were eaten up by fire ants. The fire ant is by far the most dangerous importation yet."

If you have any doubts as to the success of this scare campaign, the answer lies in the $4 million annual appropriations made by Congress and some Southern State legislatures. In light of the presentation outlined above, this money was appropriated for the program.

The Agriculture Department then set out on a campaign with complete assurance to everyone that the imported fire ant could be eradicated, that methods to be used would safeguard wildlife, beneficial insects, songbirds—in effect, the balance of nature.

A crash program, with directives to field personnel of the Agriculture Department, was carried on "without regard to landownership or use." Facts presented in opposition were pushed aside or completely ignored.

At the time this program was initiated there was very little known about the important aspects of the target ant, although in a recent survey of the Cooperative Economic Insect Report of the Plant Pest Control Division of the U.S. Department of Agriculture issued in May 1958, only two States, Louisiana and Mississippi, listed the fire ant among their 20 most important economic insects, and then far down the list in importance, grouped with insects which were a nuisance to man and domestic animals rather than agricultural crops.

We have had the imported fire ant in Alabama for 30 to 40 years, but only recently has research revealed the following facts:

Effects of imported fire ants on crops and livestock

Dr. F. S. Arant, head of the Zoology-Entomology Department of the Agricultural Experiment Station at the Alabama Polytechnic Institute, issued the following statement regarding the above:

"Damage to crops by the imported fire ant in Alabama is practically nil. Actually, this department has not received a single report of damage to plants by ants in the past 5 years.

"Occasionally, the fire ants consume seed that are high in fat and protein content. Although okra, potatoes, and other crops are sometimes attacked, damage to plants in general is rare, except that resulting from building mounds. No damage to livestock has been observed. Cattle and sheep graze over the mounds and even lie down near them. Newly born livestock is rarely if ever killed."

The Auburn studies were concurred in by Dr. L. D. Newsom, head of entomology research at Louisiana State University. Dr. Newsom stated, "As far as we can determine, the fire ant does not injure crops or livestock directly and there are beginning to be serious doubts about indirect effects. It feeds on other insects almost exclusively."

Effects of imported fire ants on wildlife

Further studies at the Agricultural Experiment Station at Auburn reveal that:

"Studies on quail productivity in various sections of the State have been conducted each year since 1955. Results show that the percentage of young quail to old quail in the hunter's bag has been as high or higher in areas with heavy

populations of imported fire ants than in some areas where the ant does not occur."

Field observations by technically trained wildlife personnel in the Alabama Department of Conservation have never substantiated losses by imported fire ants, and to the contrary, wildlife populations are heavier with the heaviest concentrations of imported fire ant infestation. This could not be true if the imported fire ants were decimating wildlife as claimed by the proponents of the program.

Effects of imported fire ants on humans

The National Audubon Society had this to say about the dangers to humans:

"Our representative stimulated imported fire ant stings to him and found the results no more of an annoyance than mosquito bites. It is quite possible that there may be some people especially allergic. Although the public has been led to believe that the fire ant sting may often be fatal, only one human death has been traced to the ant in the 30 years since it was first identified in the South. By way of contrast, during the past 5 years, 52 persons are reported to have died from bee stings and 30 persons from stings by hornets, wasps, and yellow jackets."

In Alabama, Dr. D. G. Gill, State health officer, had this to say:

"There has never been a reported death from fire ant bites in Alabama and medical cases arising from fire ant bites are so highly incidental that they are not worthy of the records."

Even though I have had imported fire ant mounds on my lawn, and they are presently on my father-in-law's farm where my 2½-year-old daughter and 4-year-old boy spend a great deal of their time, we have never suffered any ill results from fire ants and we have never had any fear of ill results.

Imported fire ants as possible beneficial insects

Dr. Kirby Hays, assistant entomologist at the Alabama Agricultural Experiment Station, studied the fire ant in its native habitat of Argentina as well as in Alabama, and Hays' Alabama study revealed:

"Insects were found to be the most common food of the fire ant. In field studies, foraging parties searching for food were found going out from the mounds through long tunnels—up to 60 feet in length—that led away from the mounds.

"We saw ants returning with aphids, larva of different insects, small spiders and even hardbark beetles. The ants brought the insects back to the tunnel openings, cut them apart, ate the soft parts, and left the hard pieces on the ground.

"Many times the ants were found in cottonfields taking boll weevils from cotton squares. In one case where 200 boll weevils were left caged near a fire ant mound, all 200 were consumed in 1 night. They also were observed getting fly larva from cow manure.

"The ants' taste for insects was shown in the laboratory when 29 different species of insects were fed to the ants and all were eaten. They ate dead insects as readily as live ones."

Upon Hays' return from Argentina, he said, "The principal dietary item is other insects. All specialists consider the ants to be beneficial because of this insectivorous habit and cannot understand the concern of North American farmers. The specialists, agricultural workers and farmers of Argentina do not consider the imported fire ant to be of economic importance in that country."

Effects of pesticide program

Research cited above shows that the imported fire ant is not the villain for which he is credited. Nevertheless, the program continues in the Southern States, even in the face of facts showing that up to 100 percent kill of beneficial species results.

The chemicals being used are heptachlor and dieldrin broadcast in granular form by air and ground equipment. At the present rate of treatment, 7 to 12 granules will fall upon every square inch of soil. Thus, no bird or mammal can cross treated lands without being exposed to one or more granules at every step. These chemicals are contact poisons as well as stomach poisons, so that any organism which steps upon, brushes against, or eats the granules will be affected.

Insects are the first organisms to be killed—which may be within a few hours after application. Beneficial insects, such as ground beetles, are killed in large numbers. Other beneficial insects are killed in every poison application.

Heavy losses of bees in the treated areas have caused great concern on the part of beekeepers. Alabama Beekeeper W. R. Harrell, in a report verified by Alabama Polytechnic Institute entomologists, set his loss at about $3,000. The cause of damage was given as fire ant poison by Harrell and the entomologists.

Another Alabama beekeeper, J. H. Moody, stated that the fire ant poison nearly wiped out his operation. An affidavit notarized and signed by Moody set his losses at $7,887.50. Moody said his bees were in perfect condition before the fire ant poison was applied in the area of his hives.

Moody had 1,800 orders for packaged bees which he had to refuse when the bees died. He stated that the buyers expressed sympathy in his losses but that didn't help the orders any.

Alterations in the balance of the insect world may be of far reaching consequences not now known. Possible flareups of harmful insects should be investigated before the program continues.

Effects of these chemicals on livestock and other domesticated animals are causes for alarm. Deaths of cattle followed chemical treatments in Arkansas, Texas, Alabama, and Georgia. Large-scale loss of household pets, poultry, and even fish-bait yards, has occurred following the application of these poisons in residential areas. Affidavits made to the Alabama Department of Conservation show that at 36 homes in such an area, the kill included 697 dead chickens, 20 turkeys, 11 cats, 2 ducks, and upward of 50 dogs which were hauled to the city dump.

As to wildlife, time will allow only a brief discussion of the widespread losses throughout the South as a result of this program. Firsthand experiences of our conservation department personnel revealed 75 to 100 percent loss of ground-dwelling birds and animals in the following instances:

Aerial applications of chemical poison near Camden, Ala., caused heavy mortality to wildlife. All resident quail, 13 coveys, disappeared from the treated areas. The only survivors were among two coveys ranging to a large extent, but not entirely, off the treated area. Seventeen percent of the quail lost on the treated area was recovered as dead or dying birds. Dead quail were recovered from 7 of the 13 resident coveys on the treated areas. All specimens autopsied contained sufficient chemicals to attribute their deaths to the insecticide. One covey of 10 quail was observed almost daily until the entire covey was gone. The study implicated insecticides as the cause of heavy mortality among 41 other species of animals.

Even with the heavy loss of wildlife at Camden, the fire ants continue to survive in the treated area.

A check of a 10-acre plot in Autauga County, Ala., following the application of heptachlor for fire ant control revealed the deaths of 6 rabbits, 3 quail, and 48 songbirds. These specimens were collected by a five-man team, including myself, in a period of less than 2 hours. Laboratory analysis of these specimens showed heptachlor in sufficient quantities to have caused death in all specimens examined.

The U.S. Department of Agriculture attempted to counteract these findings with a public statement that these birds and animals were picked up on an area used as a landing strip for the aerial applications.

The landowner supported a protest by the conservation department of this effort to discredit research findings by giving a signed statement that it was at least 3 air miles to the nearest landing strip utilized by planes treating the area.

To carry my personal observations further, on an area treated last spring where I had found excellent quail and rabbit hunting in the past, I was forced to discontinue hunting during the past season due to a noticeable lack of birds or animals that once were found in abundance.

In south Georgia, Louisiana, northwest Florida, and Texas, heavy wildlife mortality paralleled that in Alabama.

On a 2-acre plot in Georgia, examined by U.S. Fish and Wildlife personnel, 6 quail, 7 rabbits, 20 songbirds, 3 field rodents, and 1 cat were found dead. Heptachlor and heptachlor epoxide were found in tissues of these specimens. Bird and animal activity in this area was appreciably lower than in adjacent untreated plots. A later check of the treated area revealed no live birds or rodents.

In Louisiana, studies revealed that initial wildlife mortality following the application of poison chemicals was high. Nesting mortality was severe. Redwing blackbirds and meadowlarks were reduced to zero on the study areas.

Several specimens of animals and birds, found dead on the study areas, that were submitted to the Patuxent Research Laboratory, U.S. Fish and Wildlife Service, contained heptachlor. Earthworms, which are the chief food of woodcock, contained heptachlor 5 months after treatment. These worms may constitute a hazard to all ground feeding birds. In addition, the Louisiana check showed that on initial application, the earthworm population was reduced 78.9 percent.

Florida Biologist Matt Whisenhunt stated that residents of Milton and Jay in Santa Rosa County have reported losses of cats, dogs, fishermen's worm beds, songbirds and chickens. They attribute the losses to the treatment of their cities for fire ants.

About 700 acres of boys' industrial school lands near Marianna, in Jackson County, were treated with dieldrin by ground application at the rate of 2 pounds of insecticides per acre. Almost immediately after the application, dead fish, birds, mammals and amphibians were found on the area.

In Texas, Dan Lay, wildlife biologist, reported the following:

"On the Fralise ranch, where heptachlor was applied at the rate of 2 pounds per acre, it was found that:

"1. Bird populations along ranch roads in the treated area were reduced 92 to 97 percent in 2 weeks.

"2. Bird populations within acre-plots studies were reduced 85 percent in 2 weeks.

"3. Nesting success of birds in the area was reduced 89 percent.

"4. Almost all wildlife species present—including birds, mammals, fish. reptiles, amphibians, insects and crustaceans—were affected.

"5. Heptachlor proved to be lethal to wildlife when applied to either wet or dry soil."

Following the reports of heavy wildlife losses in various sections of the South, the Fish and Wildlife Service stated, "These reports from all areas studied by Bureau of Sport Fisheries and Wildlife employees or cooperating agencies show losses of birds and small mammals as an immediate consequence of the fire ant control operations. Bird numbers in the two most extensively studied areas were reduced from 75 to 85 percent. In Hardin County, Tex., dead specimens recovered amounted to 33 percent of the estimated pretreatment population. Quail and rabbit populations were decimated or completely wiped out."

In all instances where qualified wildlife personnel have checked, following the application of chemical poisons for fire ant control, losses of bird and animal life have been noted, such losses dependent on the type of area checked.

There is no doubt that a continuation of the fire ant control program will bring even greater losses than those mentioned here. The results were the same wherever heptachlor and dieldrin were spread on wildlife supporting lands. The immediate kill is only the first phase. The long-range results are yet to be learned.

Even if eradication were possible, it would not be worth the heavy losses suffered so far, but since the program is not one of eradication—but merely one of spot treatment in the several States—it is difficult for us to understand why the U.S. Department of Agriculture will attempt to lead the public to the thought that the imported fire ant will be eliminated from this counry.

The Department made itself quite clear in June of 1958, when a memorandum entitled, "Some Facts About the Imported Fire Ant Program and Reported Wildlife Losses," was submitted to southern field personnel in the Plant Pest Control Division. Agricultural officials claim there are 27 million acres infested in various States. The memorandum stated, "Presently, it is estimated that no more than 1 million acres will be treated per year with a probable maximum of not over 200,000 acres in any State."

It is stated by these same officials that Alabama has over 11 million acres infested with the imported fire ant. If the statement contained in the memorandum is to be followed, this means that it will take between 55 and 57 years to treat the infested areas of my State.

With the residual effect of the poison expected to be from 3 to 5 years, this means that lands treated in the initial stages will be susceptible to fire ants for some 50 years before the ants have been treated in all areas.

There is a great deal to be learned about the chemicals being used in Alabama. Even though studies may have been made by the manufacturers, these studies have not been sufficient, nor have they been made under the conditions in which the chemicals are now being used.

Contrary to all the facts that have been brought out in opposition to the widespread use of poisonous chemicals in the fire ant program, the U.S. Department of Agriculture pushes ahead and is now asking Congress for more money to continue to wreak death and destruction upon the South. To assure themselves of this money, they are producing a film on imported fire ants which will probably be used to scare the daylights out of people, and doing so without due regard to facts. I have a copy of an early script which will bear this out. I will be happy to show this to anyone wishing to see it.

I might add here that we do not appreciate the efforts of some proponents of the control program applying pressure to have reputable research men fired for uncovering facts about the program. This has been the situation in the Southeast, and I sincerely hope that all responsible agencies will place themselves above this sort of thing in the future. Research is vital to both agriculture and wildlife, and there is no room for pressures which will hinder the uncovering of information needed to guide our actions in the future.

In closing, I would like to offer the above evidence in support of Dr. George J. Wallace, Department of Zoology, Michigan State University, in his three-point statement, which says:

1. The current widespread and expanding pesticide program poses the greatest threat that animal life in North America has ever faced—worse than deforestation, worse than market hunting and illegal shooting, worse than drainage, drought, oil pollution, and possibly worse than all these decimating factors combined.

2. The present ill-conceived and grossly mismanaged fire ant eradication program will go down in history as the worst biological blunder that man has ever made.

3. If this and other pest eradication programs are carried out as now projected, we shall have been witnesses, within a single decade, to a greater extermination of animal life than in all the previous years of man's history on earth, if not since glaciation profoundly altered the life of the whole Northern Hemisphere.

The Uncontrolled Use of Pesticides in the Southeast

(By Clarence Cottam, director, Welder Wildlife Foundation,[1] Sinton, Tex., before Southeastern Association of Fish, Game, and Conservation Commissioners, Baltimore, Md., October 26, 1959)

INTRODUCTION

It is an honor and a genuine pleasure again to be privileged to meet with my friends of the Southeastern Association of Fish, Game, and Conservation Commissioners. To meet and participate again with you and your technicians and research workers brings back many pleasant memories. Through your untiring efforts and united approach great progress has been made. Still, we have difficult and perplexing problems currently confronting conservation workers and administrators but, through a united approach, these problems and perplexities will be appropriately resolved.

While it would be much more satisfying and perhaps more conducive to good friendship if we could dwell on progress made, I believe we will contribute more to progress if we review annoying and difficult problems confronting us and attempt to find solutions that are in the broadest and most enduring public interest. Some of us seem to gravitate to some of these problems and controversies.

THE PESTICIDE ISSUE

The pesticide and specifically the fire ant control program in the Southeast is currently a major issue that needs clear thinking and united action of all conservationists. While the fire ant is currently found in but nine of our Southern States, the problems and philosophies associated with control are of national and international concern and affect all of us. In fact, I am

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[1] Contribution No. 43, Welder Wildlife Foundation.

convinced some of the philosophies expressed and actions taken by the pest control arm of our Federal Department of Agriculture seems to me to strike at the very heart of American democracy itself. The problems, therefore, far transcent the control program or any entomological considerations. If some of their dogmatic and dictatorial approaches win out, much of our wildlife will be doomed.

The pesticide committee of the international association recently summarized its findings in this regard. Because so many of you were not at the international meetings recently held in Clearwater, Fla., a few of those facts need to be repeated and reemphasized.

We must remember that pesticides were developed in response to a genuine public need and demand. Despite abuses and extremes that we are now witnessing—and they are legion—chemical controls, I believe, are needed and are here to stay, although not necessarily in the same compounds, formulations or methods of applications as now employed.

We can and should unite in a concerted effort to help eliminate abuses and insist on maturity of judgment and intellectual integrity in the control programs. We must not oppose legitimate pest control, per se, but only abuses and incompetence and insist that all interests and resources be appropriately considered in the operational programs. We are rendering a public service to insist that a reasonable degree of research precede rather than succeed gigantic operational application of highly toxic pesticides and particularly when this is guided by an arrogant Federal agency that refuses to consider any but a single side of the problem.

The public need and demand for chemical controls undoubtedly gave birth to the powerful and lucrative insecticide industry. It also brought into being governmental agencies whose major or sole responsibility was to carry on pest control. We must remember that the bureaucratic tendency to grow bigger and bigger and to gain more and more power and authority is ever present in a strong centralized government. Also, the realization of possible high profits for industry presents an ever-present temptation to adjust formulations and to carry on wholesale campaigns of control that will materially increase sales and profits. Examples of the above are probably not hard to find. For mutual betterment, it is to be expected there would be mutual support and cooperation between pesticide manufactures and control workers—but we hope no collusion. These tendencies and possibilities do exist which should keep top administrators on the alert to maintain integrity among subordinates and to see that consideration is given all values and also to see that the control arm is appropriately held in check.

EXTENT OF CONTROL

By summary we can state that the pesticide industry is growing by leaps and bounds. Well over 12,500 brand-name formulations and more than 200 basic compounds are sold over the counter with little restriction or restraint, regardless of the potency or danger of the concoction produced. If that isn't enough, and assuming that a newspaper account is accurate, Agriculture's operational pesticide division has campaigned to give away to property owners such potent and dangerous chemicals as heptachlor, with an irresponsible assurance that no damage will result. Is it ignorance of the facts or criminal negligence that an unsuspecting public is advised to use 12½ pounds of heptachlor per acre? Benevolently, the account adds that the Government will loan "seeders" to spread the poison furnished at no cost. Heptachlor is such a powerful stable poison that 1¼ pound per acre placed on the land is expected to kill any invading fire ant for a period of 3 to 5 years or even longer. It is rated as 15 to 20 times more powerful than DDT. Therefore, an application of 12½ pounds of heptachlor per acre is equivalent to 187½ to 250 pounds of DDT per acre. One pound of DDT last year placed out under carefully controlled conditions in a New Brunswick forest practically eliminated the year's salmon run, and a similar application was devastating to the brown trout and whitefish in the upper Yellowstone River watershed of Montana. What would 187 to 250 pounds per acre do?

Most of our commonly used pesticides today were not known 5 or 10 years ago. Moreover, these newer pesticides generally are less specific and more toxic than those of but a few years back.

Last year these deadly chemicals were applied to more than 100 million acres of land in the United States and millions more in Canada and Mexico. Mixed with dusts, oils, water, and other solvents, emulsifiers, and carriers, the volume

totaled between 2 and 3 billion pounds and cost the consumers over $500 million. Entomologists expect at least a fourfold increase in the use of insecticides in the next 10 or 15 years. The rate of application varies from a few ounces to 25 or more pounds per acre, and applications are frequently repeated. In the fire ant "eradication" program some 1,700,000 acres have been treated to date. The U.S. Department of Agriculture informs us that 27 million acres of land in the Southeast have a population of fireants. "Eradication" was begun in 1957.

WILDLIFE—FIRE ANT ERADICATION RESEARCH

Research on the effects of the fire ant program on wildlife was summarized as the proceedings symposium, October 19 and 20, at the 1958 southeastern association meeting held at Louisville, Ky. Here splendid reports with supporting data were presented by researchers in the field. It is hoped current progress reports can be given in the technical sessions which follow.

Perhaps a few highlights on these and other studies where chlorinated hydrocarbons are used may be of interest here. Studies have been conducted to determine the effects of the control chemicals in Decatur County, Ga.; Camden and Pike Road, Ala.; Sour Lake, Tex. and in Acadia, St. Landry, West Baton Rouge and Concordia Parishes, La. On all of the above, except Pike Road, Ala., which started in the spring of 1959, research on the effects of the control was started in 1957 or 1958.

RESEARCH FINDINGS—EFFECTS OF CONTROL

Studies conducted this past summer confirm very well the general conclusions reached a year ago. In addition, they shed greatly needed information on the long-term and indirect effects of control when lethal poisons are broadcast. It is imperative that these field studies be continued for a number of years to give reliable field data on these profoundly important long-time and indirect effects. Data painstakingly acquired this year show the necessity of study plots being of sufficient size to cover the seasonal range of the various species of wildlife under consideration. If the home range of a covey of quail, for example, covers an appreciable part of untreated area we notice a distinct differential, at least concerning the immediate effects, upon the covey as against other coveys that spend all their time on the treated plot. This very factor accounts for most of the discrepancies between research workers studying this subject in the past.

Usually, if large areas are treated according to past standards of application, there is a loss within the first 30 days on cleared areas and pastures with few or no trees or shrubs of 80 to nearly 100 percent of almost all wildlife species residing full time on the area. Reproduction is usually greatly reduced. Where trees and shrubs occur, nesting success ranges from 6 to 45 percent. Field studies as yet shed no light on surviving F^2 and F^3 generations. Studies to determine this should be set up.

This summer's data show a definite delayed effect of the poison. They also suggest that the stable and highly lethal poisons are effective in killing wildlife even a year or 15 months after application of the pesticide. Species of birds that feed and scratch the ground and dig out earthworms and insect larvae are especially vulnerable to secondary poisoning. Robins and brown thrashers, for example, are usually eliminated. New winter arrivals that may come 6 to 9 months after treatment, or even a year later, are killed off. Brown thrashers and robins were common visitors in the shrubbery and woodland areas of the Fralise (Sour Lake), Tex., area before treatment, but were readily killed off. Three brown thrashers were shot and collected as new arrivals in November of 1959. When their carcasses were chemically analyzed, they showed an average of 16 p.p.m. of heptachlor. By January (1959), Lay could find no thrashers on the area (11).

Continuation of the studies in 1959 of plots established in the Texas area in the early spring of 1958 showed that nesting populations on these areas had decreased about 70.5 percent. This suggests that the old nesters had been killed off and that reinvasion was slowly taking place. It is also significant to report (1, 11) that nesting in the fields treated in the spring of 1958 was only about 68 percent as successful in 1959 as on adjacent nontreated areas. This further indicates that the poison put out the year before was still having an effect on nesting the following year. Population counts near roads 1 year after treat-

ment showed a reduction of 44.7 percent; acre plot counts showed a 33⅓ percent reduction; woodland counts showed a 68.5 percent reduction, while narrow untreated strips of woodland adjacent to and surrounded by treated pastures showed a reduction of 45.8 percent of bird populations one year after treatment.

Whistling cock counts of bobwhite quail this past summer (1959) in Decatur County, Ga., show a population, 1½ years after treatment, of only about one-half that of similar untreated habitat. A spot-treated area in the spring of 1959 covering perhaps one-half the range of the quail caused about a 50 percent drop in the quail population by midsummer.

Dr. Maurice Baker and Dan Speake found a significant bird die-off at the Camden experimental substation in the spring of 1959 after 1 year following the application of the pesticides. Bird populations on the treated areas were much smaller than on other adjacent, but untreated, lands of comparable habitat. Quail, robins, meadowlarks and other songbirds were found dead on the treated plots. Robins apparently were completely eliminated from the treated area.

The Pike Road station, Alabama, was reportedly treated with 2 pounds of heptachlor (active ingredient) per acre from April 30 to May 4, 1959. Nesting success on the treated area was 46.3 percent and on untreated areas, 76.7 percent. Ground nesting birds had 17.4 percent nesting success, while 53.8 percent were successful on adjacent untreated areas. Shrub-nesting birds had 42.9 percent success on the treated and 87.5 percent success on untreated comparable areas. For reasons not yet apparent, tree nesting birds showed relatively little effect from the treatment. Whistling cock quail declined 76.9 percent and meadowlarks 80.5 percent.

Indirect and delayed action effects of modern controls are clearly shown in the studies of Wallace (15) and Mehner (12). Moderate to heavy populations of robins and most desirable birdlife were greatly reduced or practically eliminated in a number of northern communities, notably on the campus of Michigan State University, suburban Pittsburgh, and other communities in Michigan, Wisconsin, and Illinois. Recent unpublished reports add much to confirm these conclusions. Control of the Dutch elm disease resulted in poisoning of earthworms and insects and indirectly many species of most loved wild birds that frequent college campuses, city parks and suburban areas. Reinvaders a year later (spring and summer of 1959) showed that high mortality rates, considering the reduced populations, were still occurring, and these favored brooding and feeding areas were literally graveyards for many birds not produced on those areas. Laboratory tests shed further light on this.

Our most competent entomologists have long known that the indirect effects of poisonous pesticidal applications would represent delayed actions and, therefore, these longtime and side effects could not be fully appraised for a considerable period. Perhaps the clearest insight into these indirect effects on wildlife has come from a series of well-planned cage experiments and studies (3, 4, 5, 6, 7, 8) conducted by Dr. James DeWitt of the U.S. Bureau of Sport Fisheries and Wildlife. A number of exceedingly important papers have been produced by him, and they give us cause for alarm.

DeWitt found that highly toxic chlorinated hydrocarbon pesticides (and some others) not only are extremely lethal in minute quantities, but also are accumulative. Further, young birds hatched from parents that had ingested minute sublethal doses of poison showed a much higher mortality after hatching. Furthermore, sterility or partial sterility may follow in those young that do survive. As little as one two-hundred-thousandths of an ounce of dieldrin per day in the food of pheasants resulted in eggs of low hatchability and chicks subject to abnormally high death rates. We can see little reason to expect that the indirect effects of these highly dangerous poisons, in quantities now applied, will be any less damaging to man or to his domestic livestock.

QUESTIONABLE PROPAGANDA

It is my opinion that there has been more misinformation, unfounded assertions, inaccurate reporting and scare campaign propaganda, if not bold deception, fed the American public in attempting to win support for the ill-conceived and irresponsible fire ant "eradication" program than for any other control program ever attempted in this generation. Charles D. Kelley (10), secretary of the Alabama Wildlife Federation and a high and responsible official of the Alabama Game Department, has appropriately remarked that the program "was ill-advised, hastily conceived, poorly planned, and a glaring example of

riding roughshod over the responsibilities of other public and private agencies. From its conception, the program has been one of exaggerations and misrepresentation, combined with the deliberate withholding of known facts." Kelley's address contains many examples of this. It would be interesting and perhaps enlightening to know who, besides the Government, has paid for all the "official" propaganda.

Despite all the "scare" campaign, motion-picture propaganda and false reporting, isn't it rather significant that only two States, Louisiana and Mississippi, have listed the imported fire ant among their 20 most important economic insects? Even in these States, it is placed near the bottom of the list and grouped with nuisance insects rather than with those that are a menace to agriculture. Isn't it also significant that Alabama, where perhaps more than one-third of all American fire ants are to be found, and where they have thrived for 40 years, has recently turned thumbs down on contributing any appropriation to cooperate with the Federal Department of Agriculture in the fire ant "eradication" program. In my personal opinion, those who defeated this measure deserve the gratitude of every citizen who loves democracy and our free enterprise system.

In the more detailed "International" paper (1), account is given of the false and misleading report sent the Congress in supporting the annual $2.4 million Government appropriation for fire ant "eradication." While I firmly believe the high Department official who signed the misleading request was unaware of the facts, the subordinates and fieldworkers who supplied the information should have known the facts.

It is amazing that Agriculture pest control workers and, still more startling and perplexing, that Federal Control officials continue to belittle and deny any significant loss or damage to wildlife or other interests when such potent stable poisons as dieldrin and heptachlor are broadcast at the amazing rate of 2 pounds of technical material per acre. This amount they broadcast by airplane over extensive areas, and they expect the poisons to continue to kill insects for a period of 3 to 5 years or possibly longer. The U.S. Public Health Service (14) has shown that these two pesticides are so poisonous that they have a 96 T L_m value of 7.9 and 19 p-p-b, respectively, for bluegills. This means that if healthy bluegills are placed in a tank of water at least one-half of them will be dead within 96 hours if the water contains as much as 7.9 parts per billion of dieldrin or 19 parts per billion of heptachlor.

As evidence that Agriculture recognized that these poisons were dangerous, they sent out an official warning where control was to be practiced, which reads: "Cover gardens and wash vegetables before eating them; cover small fishponds; take fish out of pools and wash pools before replacing the fish; don't put laundry out; keep milk cows off treated pastures for 30 days, and beef cattle 15 days; cover beehives or move them away; keep children off ground for a few days; don't let pets or poultry drink from puddles." These officials are like the three oriental "Wise Monkeys"—they refuse to see any evil, hear any evil, or speak any evil. Obviously, their conclusions are first arrived at and the supporting "facts" are garnered later.

FIELD EVIDENCE ON EFFECTS OF CONTROL

Many thoroughly documented records could readily be given of serious wildlife loss following application of heptachlor and dieldrin in the fire ant program. A few of these have been referred to.

A 3,600-acre tract in Wilcox County, Ala., experienced an 87-percent reduction of bobwhite quail following treatment, and at Climax, Ga., an 86.4-percent reduction was noted. A year later, this latter area still was 56.1 percent below quail populations in adjacent untreated land.

Recently, I visited areas in Georgia and Alabama and made it a point to call on some farmers in these States whose property had been treated. Not all were aware of the damage that I believe occurred. This is understandable if they had no chickens or livestock running loose over the property and if they were unfamiliar with their native wildlife.

Mrs. A. A. Jones and her son and two daughters were emphatic that losses had been serious in their area following the "Government" treatment. They reported loss of cattle, pigs, turkeys, and chickens along with household pets and wild birds. They volunteered the information that quail, crows, jays, mockingbirds, and "all little tree birds" seemed to be eliminated by the "eradication" program. Mrs. Jones remarked that she "set" several hens, following

the complete coverage of fields and woodland areas with the poison, and for reasons she did not understand, very few young were hatched or survived.

Mr. A. C. Scarborough was frank to announce that so far as he could tell, his high population of quail was wiped out and that "mockingbirds, red birds, and all tree birds were largely eliminated." Some of these are now coming back and he had reintroduced quail. He reported that wild turkeys and doves were also eliminated in his area. He raises hogs and he remarked that for fully 9 months after the broadcast of poisons, he could raise no young pigs. The litters were born dead or they died after birth.

A Mr. Harmon in the same section of the State was irate against the control workers, as he said he buried or otherwise disposed of 19 carcasses of his cows that had been killed by the poison and he knew of 3 or 4 additional cows that died as a result of the same treatment. Calves died that had been given only milk since birth. Mr. Harmon also raises pigs. Some of these died. He reported that of 37 litters of possibly 250 young, only 31 little pigs survived. He had been unable to raise chickens since the application of the poison 15 months before. Mr. Harmon felt that his area had largely been left a biological desert since the poison was broadcast uniformly over farms, pastures, and wooded areas. His quail and wild turkey were destroyed along with all other native wild birds. He had suffered no abnormal loss of cattle, calves, pigs, game, or other wildlife prior to this time, and none occurred on adjacent untreated areas during this time.

The local veterinary, Dr. Ottis L. Poitevint, of Bainbridge, Ga., despite Government claims to the contrary, was adamant that this loss was the result of the insecticide treatment. He found losses wherever the poison had been broadcast, but nowhere else. He assured me that the symptoms in the affected animals he treated were typical of chlorinated hydrocarbon poisoning. Furthermore, chemical tests of dead animals confirmed the poisoning.

In a report to Ray E. Tyner for the Georgia Sportsmen's Federation Dr. Poitevint states, "I would like your people to know some of the facts concerning the fire ant eradication program in Decatur County and its obvious effects on livestock and poultry.

"The aerial application of heptachlor and/or dieldrin was begun in November 1957 and continued into early summer 1958.

"Livestock losses of an alarming nature began to occur in February and March 1958. I would like to list some of the facts concerning these losses.

"1. A condition affecting the nervous system of domestic animals and poultry was seen at periods of 2 weeks to several months following the aerial application of fire ant poison. This condition was in most cases fatal.

"2. The condition was seen to affect several different species such as cattle, goats, horses, and chickens as well as wild animals and birds.

"3. The condition was seen only in species which had access to contaminated food or water or both. Stabled animals were not affected.

"4. The condition was seen only in those areas of the country which had previously been treated for fire ants.

"5. The symptoms observed by myself and reported by others were the same as those described in authoritative textbooks for poisoning by dieldrin and heptachlor.

"6. Veterinarians in the employ of the USDA suggested rabies and listeriosis as possible causes of the condition. Laboratory tests for these and other known diseases were negative.

"7. It has been reported that dieldrin and heptachlor disappear within 1 month, usually 2 weeks after application. They say, therefore, that poisoning could not occur later than 1 month after application.

"An interesting case history is as follows. On April 15, 1958, a 2-month-old calf was picked up by agents of the State and Federal Governments. The animal showed symptoms not unlike those described for poisoning by heptachlor. The animal was carried to Tifton and was subjected to exhaustive laboratory tests with negative results. Fat from this animal was analyzed by Federal chemists and found to contain 79 parts per million of heptachlor. This occurred approximately 5 months after application of heptachlor. Did the calf get this from grazing or from milk? If from the milk, why were not special precautions taken to protect our children who drank milk from local dairies? By the way, this calf was never paid for.

"Losses of cattle exceeded 100 and numbers of other animals died. Abortions in swine and sterility may have been due to insecticide also."

I encountered several areas where quail had been restocked following the fire ant treatment.

ECONOMIC EFFECTS

The loss of quail can have high economic significance in Alabama and throughout the South. Assuming control on 1,750,000 acres (the acreage treated probably exceeds that figure by now) and further assuming that this land carries 1 bird to 4 acres (which figure is below better quail lands, even in areas of high fire ant populations), this would indicate a population of 437,500 birds. If one-half of these could be harvested, that would amount to 218,750 birds. If the average take for your seasoned and enthusiastic hunters is 50 birds per season, this would afford hunting for 4,375 persons. If each spent 10 days vacation in quail hunting, it would represent a total of 43,750 man-days. If even a substantial part of these were wealthy visitors, the amount these people, their families, or guests brought with them, would spend would be considerable and would add much to the income of your communities. Certainly the loss would be significant and alarming, and I can't conceive of a chamber of commerce, local civic club, or any loyal and patriotic citizen not wanting to do all in his power to prevent this unnecessary waste. I merely want to suggest that, in my opinion, you are only doing your duty in rising in rebellion against this ill-conceived, irresponsible, and unnecessarily destructive fire ant "eradication" program.

OTHER CONTROL PROGRAMS

The fire ant program is relatively a minor part of the national control picture. It would be much more pleasant to stress the successful and cooperative projects but, because this program is a departure and, I believe, a very dangerous trend in government, and also because it is a major project in your section of the country, this has been stressed. Certainly, we know of no other project in its administration, publicity, operation, and effects on other interests that deserves the criticism that this one does. We do not expect perfection either in the administration or operation of such a tremendous program. We do expect honesty, a reasonable degree of competence and sufficient maturity of judgment that other interests and national resources will be given fair consideration.

It isn't only in the field of entomology that problems may arise. The predatory and rodent control programs of Interior constantly need review and objective appraisal. Likewise, the problem of herbicides needs constant review and surveillance to prevent public damage. Herbicides are an excellent tool in plant management but, unless used with skill and understanding, great damage instead of benefit can result.

A PARTIAL SOLUTION TO THE PESTICIDE PROBLEM

It seems to me that the first step in the solution of entomological pesticide problems is a more logical administrative setup to direct it. If my understanding is correct, the operational activity is widely separated from the research branch. The research arm should not be under the domination of the operational branch. A common administrator, however, should direct both and insure that an operational program is appropriately guided by sound research. Obviously, this has not occurred in the fire ant program. To have the operational branch also conduct the research in effect makes it both "judge, jury, and executioner." In a democracy, this is rarely satisfactory or successful, as the high-handed fire ant "eradication" program clearly illustrates.

That the public needs protection from overzealous, uninformed, or irresponsible control groups already has been recognized by Federal legislation. The Insecticide, Fungicide, and Rodenticide Act of 1947, requiring all pesticides to carry accurate labeling instructions, if followed with understanding, will help to protect man and domestic and wild animals. The Miller amendment to the Food, Drug, and Cosmetic Act provides for establishment of tolerances limiting quantities of toxic materials in foods or feedstuffs moving in interstate commerce. Neither of these acts prohibits, nor regulates, the contamination of the environments of man, animals, or plants. We are unaware of legislation that prohibits or provides penalties for improper or excessive use of toxicants that directly or indirectly may seriously injure man and his resources.

It should be emphasized that current legislation is inadequate to protect the public against indirect effects of poisons. They are entirely ineffective as they

relate to wildlife because the lethal pesticides are placed out in wildlife habitat, on wildlife foods, and usually the wild creatures are exposed to the direct effects of the poisons. Their water and foods are often dangerously contaminated.

I believe that further Federal protective legislation is needed (1, 2) to establish a national control policy requiring that the total toxicants applied shall not result in hazardous conditions to man and his domestic and wildlife resources. This policy should provide that toxicants be applied only after the value of the control has been objectively and carefully weighed against the probable harm that will result. It is essential that the long-term or indirect effects of control, as well as the immediate consequences, be considered. Because there are too many examples of poisonous compounds being promiscuously applied where there are few or no pest insects (as for example in the fire ant program), it seems that the national policy should clearly state that the dangerously poisonous pesticides may be applied only in areas where there is a proved need and when and where the poisons can be expected to do more good than harm.

Further, this policy should provide that the minimum amount of poison for effective control be used, and not an excess. That there is need for a declaration of such a policy, we can point out that the Department of Agriculture is now recommending a 37½-percent decrease in the amount of poisons used in the control of fire ants, after 2 years of applications and spraying well over a million acres of land. Furthermore, the present dosage of 1¼ pounds of heptachlor or dieldrin per acre is so high that one application is expected to remain sufficiently toxic that it will kill any invading ants for a period of 3 to 5 years, or possibly longer. The national policy should provide that if the need for control is clearly indicated then only the most selective, safe, and effective control agents, formulations, and procedures be utilized.

Legislation is needed to insure that operational control of mammoth proportions, or "eradication" programs, be preceded by a reasonable degree of research on the economics of the problem, including a cost-benefit study, the need of it, the direct and indirect effects of specific control procedures upon man, domestic and wild animals, crops, soil organisms, and upon the economy and well-being of our society. It would seem wise that the national policy provide that before any blanket aerial spraying of a large area (i.e. 1,000 acres or more in a single block) is initiated, notice of intent, with a description, location and designation of the area be published in advance and a public hearing held to determine whether there is significant opposition to the contemplated program. If appreciable opposition develops at the hearing, and if differences of views and proposals cannot be reasonably well ironed out, we recommend that the National Research Council (or the National Academy of Science) be asked to investigate the problem for an impartial recommendation which would then be submitted to the Secretaries of Agriculture and Interior. On the basis of these facts, the Administration could intelligently proceed.

It will be recalled that the Food and Drug Administration came into being to establish and maintain safe standards of purity for our foods and drugs and to give the public some protection against quacks and swindlers who happened to be in these industries. There is urgent need that the Congress give consideration to protecting our whole environment from dangerous contaminations. The lucrative possibilities involved in spewing poisonous chemicals over the landscape make it imperative that a closer watch be maintained over pesticide operations. The pesticide industry or the Federal operating agencies involved in control cannot and should not be expected to do this.

In addition to needed Federal legislation, we believe that most of the States also need legislation to curb questionable pesticide projects and to establish some degree of supervision over approved programs. Present Federal legislation affecting pesticides is designed to control the labeling and quality of products that are shipped from one State to another. Because field application of pesticides is largely an intrastate matter, it appears that the individual States can best cope with the situation through State laws and regulations. The State of Connecticut and a few others already have legislation designed to control or regulate pesticide operations and applications of poisons within the State. The various States would do well to study this problem. In Connecticut, the State fish and game commission has a voice in reviewing proposed operational programs. All State game and fish departments should have similar authority.

COMMENT

It is apparent that our current approach to the pesticide problem needs a new look. Instead of seeking evermore toxic, broad spectrum compounds, we should strive to develop materials which are selective or specifically toxic to particular insect pests that need control. We should strive to use less rather than more toxicants through better and specific cultural practices, and we should give far more consideration to effective biological control methods. In some instances, biological control has been eminently successful (9).

Some 50 species of our worst insect pests already have developed resistance to increasingly large and evermore poisonous dosages of pesticides, and the list is rapidly lengthening (13). Also, by the wholesale use of generalized programs, beneficial insects have been killed off. Because of this, some destructive insects and related pests have developed to plague proportions and much crop loss has resulted. The eruption of red mite plagues, the epidemic of sugarcane borers, or rice stinkbugs in Louisiana are illustrations of this.

We must remember that dangerous toxicants are poisonous to man and his domestic livestock as they are to other biological organisms. There is an increasing array of evidence that man is being adversely affected by them. It is foolish to accept unnecessary risks. We recognize the public need of chemical control but feel that agencies directing it should deal honestly, maturely, and responsibly. They should have sufficient breadth of vision and understanding to appreciate other interests and values.

Without doubt, there are times and circumstances when Federal participation in the control program is needed. I believe it is in the public interest that this be kept to a minimum and not handled as a public dole. When control becomes extreme, the cure may be more damaging than the depredation or annoyance of the insect. May I remind you that your tax dollar, extracted and sent to Washington and then sent back to you to carry on insect control or perform any other function for individuals they can easily do for themselves, loses much of its purchasing power in that roundtrip. Furthermore, it is well to remember that any government that can give you all you might wish can also take from you all you own. Let us not become mere numbered pawns of the States.

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Mr. MILLER. I would like to say that I agree with you that every once in a while we find an agency of Government, particularly an important agency of Government, that takes unto itself certain infallible qualities and does not want to consult with others. Every once in a while they come a cropper and they wonder why they lose the respect of Congress.

I have nothing against the Department of Agriculture, but I do think that from time to time the Department of Agriculture has been rather highhanded when it comes to dealing with what it considers the minor interests of Government—fish and wildlife, particularly.

As an old executive officer of the California division of fish and game, I know that they used to look down their noses at us in California, and I am speaking of the State department of agriculture now.

We held our own and occasionally could show that there was right on our side, and I think this is a good case in point.

I think that it has been pointed up here and I think you will agree that there just has not been enough work in this field for anyone to come out and say dogmatically, "This is right and this is not."

Mr. DINGELL. I can point out that the Department of Agriculture does not seem to care about the foods that we eat insofar as the toxic things that we get in our foods, and have looked down their nose at the Department of Health, Education, and Welfare.

Let me call attention just briefly to the remarks on page 3 that you include from a Mr. Popham of the Agricultural Research Service, where he is talking down the objections.

Mr. MILLER. He is going to testify.

Mr. DINGELL. Then I shall have some questions for him. At the bottom of page 3, you say:

> This pattern of noncooperation and nonconsultation is by no means confined to the controversial fire ant program. Within the past few weeks the Illinois Department of Agriculture has sprayed 25,000 acres of farmland near Sheldon, Ill., with the extreme toxic chemical aldrin * * *.

Do you have some other comments that you can submit for the record?

Mr. BUCHHEISTER. We can, indeed.

Mr. DINGELL. I think that would be extremely helpful.

I have no further questions. I would like to compliment you on a very fine statement.

Mr. BUCHHEISTER. Thank you, sir.

Mr. MILLER. Mr. Van Pelt?

Mr. VAN PELT. I am a bit concerned about a part of this statement. I hold no particular brief for any weaknesses of the Department of Agriculture, but, if we get down to the bottom of page 3, referring to the spraying in Illinois by their department of agriculture, what connection does that have with this bill under consideration?

Mr. BUCHHEISTER. This operation, we are told, was carried out with the technical and financial assistance of the U.S. Department of Agriculture, Plant Pest Control Division.

Mr. MILLER. This bill would require all agencies to consult, as I think has been pointed out, with the Fish and Wildlife Service and with the head of the agency exercising administration over wildlife resources of each State to be affected by the program. They would then be required to consult with the Fish and Wildlife Service of the State of Illinois.

Mr. VAN PELT. I think there should be cooperation, Mr. Chairman, between the various agencies of Government and it is my understanding that the Department of Agriculture has cooperated with the Fish and Wildlife Service in asking their opinions before they carry out these programs.

My concern is that, as an example, in the department of forestry, there are times when you cannot predetermine when you are going to have a hatch and to have that department have to go to Fish and Wildlife—under the provisions of this bill their whole program would fall flat.

It seems to me that that research should be done long before they are going to use anything, plus the fact that it places a certain amount of responsibility in another department that might delay the program indefinitely.

Mr. BUCHHEISTER. Mr. Congressman, I may be out of my field right at the moment when I say this with respect to a large spraying operation affecting a forest, but it would seem to me that if it would be a very large one, the department involved would know something about it ahead of time, and I just cannot conceive that it would be a matter of a quick hatch.

I think they must have planned and know that these things are going to come about. They know about the gypsy moth every year and the spruce budworm and that is not something that comes overnight.

Mr. VAN PELT. I appreciate that.

Mr. BUCHHEISTER. We just mean that if they know these things and plan these things that they might get advice beforehand.

Mr. VAN PELT. But temperatures vary so that you can expect something to happen in the month of May but you do not know whether it is going to happen the first of May or the end of May.

That is all, Mr. Chairman.

Mr. MILLER. Mr. Gross?

Mr. GROSS. I have no questions.

Mr. MILLER. Mr. Counsel?

Mr. ZINCKE. I have no questions.

Mr. MILLER. Mr. Callison, do you have anything to add?

Mr. CALLISON. Mr. Chairman, I have nothing to add to Mr. Buchheister's testimony, but I would like to ask the permission of the committee to submit for the record an editorial by Mr. Buchheister that will appear in the forthcoming May–June issue of Audubon magazine. His editorial is entitled, "Needed: A Coordination Act for Pesticides."

Mr. MILLER. Without objection, it will be so ordered.

(The editorial follows:)

[From Audubon magazine for May–June 1960]

NEEDED: A "COORDINATION ACT" FOR PESTICIDES

(Editorial by Carl W. Buchheister, president of the National Audubon Society)

To those who have followed the fire ant controversy it is now obvious that much unnecessary destruction of wildlife could have been avoided if there had been adequate study of the problems, and genuine consultation between insect-control agencies and wildlife agencies, before the massive aerial spraying program was begun.

In the first place, if the real facts about the imported fire ant had been commonly known, the public and Congress would not have been misled by the promotional campaign which erroneously pictured the fire ant as an all-consuming plague, devouring crops in the field, killing livestock, and menacing human life.

But after Congress had appropriated the money and after the spraying planes were in the air, it was difficult to bring about any reasonable second-look at the methods. It became increasingly difficult after the control agencies were put on the defensive by mounting criticism.

The fire ant fiasco and other examples of the careless or mistaken use of chemical controls by public agencies have led the National Audubon Society to conclude that what is needed is a "coordination act" for pesticide programs similar to the famous Coordination Act of 1946 (amended in 1958) that put advance planning and protection for wildlife into the Federal flood-control and reclamation programs.

The principle of such a law is simple. It would require advance consultation with the U.S. Fish and Wildlife Service, and advance testing of the materials and methods proposed, before the start of any Federal program involving the widespread use of insecticides, herbicides, or other chemicals designed for mass biological controls. Through such advance consultation and testing, the probable effects upon wildlife and other resources could be studied and techniques devised to prevent or minimize losses. We recognize that in this complicated world some chemical controls will be employed, but we must insist they be used safely.

A Federal law could not regulate pesticides operations by State agencies or on private lands, of course, if Federal funds were not involved. This means supplementary State laws may also be needed.

Enthusiasm for a proposed "coordination act" spread rapidly at the recent North American Wildlife Conference in Dallas, Tex., which your president attended. We can now predict that such legislation will be introduced soon in Congress, probably before this magazine goes to press.

Mr. MILLER. I want to thank you, Mr. Buchheister. I am sorry we have no more time. I think your paper is excellent.

Mr. BUCHHEISTER. Thank you.

Mr. CALLISON. If I may, I have two articles written by a previous witness, Dr. Wallace, and want to submit them for the files.

Mr. MILLER. Without objection, they may be submitted for the files.

Mr. CALLISON. I have a request from Mr. Penfold, of the Izaak Walton League of America, to place in your record a letter in which he commends the statement of the National Audubon Society on both H.R. 11502 and H.R. 11430, and a similar letter supporting the position of the National Audubon Society by Robert M. Paul, executive secretary of the Sport Fishing Institute.

Mr. MILLER. Without objection, they will be made part of the record.

Mr. CALLISON. Thank you very much.

(The letters follow:)

THE IZAAK WALTON LEAGUE OF AMERICA, INC.,
Washington, D.C., May 2, 1960.

HON. FRANK W. BOYKIN,
Chairman, Subcommittee on Fisheries and Wildlife,
Committee on Merchant Marine and Fisheries,
House of Representatives,
Washington, D.C.

DEAR MR. BOYKIN: The Izaak Walton League of America wishes to go on record as heartily in support of the purposes and objectives of H.R. 11502 and H.R. 11430.

Rather than burden the committee with repetitive testimony, we commend to you the statement of the National Audubon Society on these two measures.

Respectfully submitted.

J. W. PENFOLD,
Conservation Director, IWLA.

SPORT FISHING INSTITUTE,
Washington, D.C., May 3, 1960.

HON. HERBERT C. BONNER,
Chairman, Merchant Marine and Fisheries Committee,
House Office Building,
Washington, D.C.

DEAR CONGRESSMAN BONNER: The Sport Fishing Institute is pleased to see that your committee has scheduled hearings on H.R. 11502 to establish the Chemical Pesticides Coordination Act.

The history of the tremendous problem of protecting fish and wildlife from widespread application is well known to this committee. The hearings on the pesticide research bills point up the seriousness of the problem very effectively.

We regard H.R. 11502 as a first step in the direction of securing better protection for fish and wildlife by establishing machinery providing an opportunity for the Federal agency carrying out the spraying operations to consult with the agency charged with the protection of the fish and wildlife.

In our opinion this bill is only a first step but we certainly favor the principle that the bill would achieve. It is obvious that a wider attack including an adequate research and control program encompassing public health, agriculture, and fish and wildlife, will ultimately be needed.

We support the position of the National Audubon Society and hope that your committee takes action to incorporate more protection to fish and wildlife in the planning of Federal pest control operations.

Sincerely,

ROBERT M. PAUL,
Executive Secretary.

Mr. MILLER. Dr. Samuel W. Simmons, Scientist Director and Chief, Technology Branch, Communicable Diseases Center at Atlanta, Ga., Department of Health, Education, and Welfare.

STATEMENT OF SAMUEL W. SIMMONS, SCIENTIST DIRECTOR AND CHIEF, TECHNOLOGY BRANCH, COMMUNICABLE DISEASE CENTER, ATLANTA, GA., HEW

Mr. SIMMONS. Mr. Chairman, I do not have a prepared statement. There is a report on this bill, H.R. 11502, on its way over here to the chairman of this committee. It summarizes in about two short paragraphs the Department's attitude on this proposed legislation, and I will be glad to give that to you.

Mr. MILLER. I wish you would do that.

Mr. SIMMONS (reading):

We believe that consultation and cooperation are necessary and desirable between all the Federal and State agencies that might be involved in a Federal program in which chemicals are used for mass biological controls. Further, we would hope that the Department of Health, Education, and Welfare would be informed of any such programs to provide us with the opportunity of com-

menting on possibilities that these programs might cause pollution of water or direct hazards to human health.

This Department has conducted or cooperated in programs in which pesticides are used, sometimes over fairly large areas, for emergency or experimental control of arthropods that transmit human diseases. We undoubtedly will participate in such programs in the future. In emergencies, some of these programs must be designed and set into motion within hours, to safeguard human health. For such programs, it would be inadvisable to wait until the U.S. Fish and Wildlife Service could assess the damage to wildlife resources which might result. Further, it might not always be advisable because of reasons related to human health to take all actions recommended by the U.S. Fish and Wildlife Service.

We would therefore recommend that H.R. 11502 not be enacted by the Congress.

You will get that report shortly from the Secretary of HEW.

Mr. MILLER. The report is here now. It just came in. We have not had a chance to study it.

(The report follows:)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
April 29, 1960.

Hon. HERBERT C. BONNER,
Chairman, Committee on Merchant Marine and Fisheries,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This letter is in response to your request of April 2, 1960, for a report on H.R. 11502, a bill to provide for advance consultation with the Fish and Wildlife Service and with State wildlife agencies before the beginning of any Federal program involving the use of pesticides or other chemicals designed for mass biological controls.

The bill would provide that no officer or agency of the Federal Government would initiate or assist in any biological control program utilizing chemicals without prior consultation with the U.S. Fish and Wildlife Service and with the wildlife agencies in the States affected. The U.S. Fish and Wildlife Service would then cooperate with the officer or agency in the development of the proposed program to achieve the desired results without undesirable effects on wildlife. If the recommendations of the U.S. Fish and Wildlife Service were not followed, then they would be directed to so report to the Congress. Limited programs or those involving harmless chemicals may be exempted by the Secretary of the Interior.

We believe that consultation and cooperation are necessary and desirable between all the Federal and State agencies that might be involved in a Federal program in which chemicals are used for mass biological controls. Further, we would hope that the Department of Health, Education, and Welfare would be informed of any such programs to provide us with the opportunity of commenting on possibilities that these programs might cause pollution of water or direct hazards to human health.

This Department has conducted or cooperated in programs in which pesticides are used, sometimes over fairly large areas, for emergency or experimental control of arthropods that transmit human diseases. We undoubtedly will participate in such programs in the future. In emergencies, some of these programs must be designed and set into motion within hours, to safeguard human health. For such programs, it would be inadvisable to wait until the U.S. Fish and Wildlife Service could assess the damage to wildlife resources which might result. Further, it might not always be advisable because of reasons related to human health to take all actions recommended by the U.S. Fish and Wildlife Service.

We would therefore recommend that H.R. 11502 not be enacted by the Congress.

The Bureau of the Budget advises that it perceives no objection to the submission of this report to your committee.

Sincerely yours,

ROBERT A. FORSYTHE,
Acting Secretary.

Mr. MILLER. The Department of the Interior recommends substitution of a bill which I think, in effect, would do what you suggest.

In other words, I think, Doctor, that we recognize that other agencies of Government have grave responsibilities but, if we could get the coordination in these fields, and I am sure that the Department of Health, Education, and Welfare always stands ready to cooperate, we might be able to eliminate some of the conditions that have taken place because I think you, as a professional man, will feel, after hearing Dr. Wallace, that there perhaps is room for further investigation in this field.

We have not done it all as yet, have we?

Mr. Simmons. I might add that there are at least three committees dealing with the problem of pest control and chemicals that work on these problems. One of them is the Inter-Departmental Committee on Pest Control, which has been in operation since 1945. Some of the objectives of this Committee include cooperative planning and free interchange of information on pest control research and operations and collaboration and coordination in planning and executing control programs where there is a joint interest.

There are also two other committees. One has to do with mosquito control in fish and wildlife management coordination and another one is a group consisting of Agriculture, Air Force, Army, Navy, TVA, and Interior, that is now engaged in cooperative planning relative to mosquito control on impounded waters and irrigation projects, so that there is close liaison between the various agencies.

Mr. Miller. Mr. Dingell?

Mr. Dingell. Thank you.

Doctor, for the record, what is your duty with the Department of Health, Education, and Welfare?

Mr. Simmons. I am in the Communicable Disease Center, which is headquartered in Atlanta. I am Chief of the Technology Branch which carries on a variety of research programs including work on the control of vector-borne diseases and the toxicology of pesticides as related to people.

Mr. Dingell. Do you have familiarity with pesticides, then?

Mr. Simmons. Yes.

Mr. Dingell. Would you want to tell us just briefly about heptachlor and aldrin and dieldrin and DDT and what effect they could have on particularly mammals and birds?

Mr. Simmons. We are not engaged in a study of these on fish and wildlife.

Mr. Dingell. But you are familiar with how they affect guinea pigs and test animals as well as human beings?

Mr. Simmons. That is right. I do not have the details of our tests but we have conducted rather extensive tests on particularly DDT because it is one of the most commonly used insecticides. We know that we all get DDT every day in our meals. We all know that there is DDT stored in our bodies.

Mr. Dingell. Particularly in fats?

Mr. Simmons. Particularly in fats. Now, we have fed over a period of 3 years DDT to human volunteers at a rate of 200 times the average daily intake and have examined those people very carefully periodically over that period of time as well as procuring biopsies and making chemical analyses for DDT.

We have stopped feeding these volunteers at the present time, but we are still following them.

Suffice it to say that we have found no clinical effects of the material at that dosage.

Mr. DINGELL. This is the amount that is fixed by the Miller Pesticide Act. This is the tolerance that you are referring to when you say 200 times the amount?

Mr. SIMMONS. No; what we did was to collect meals from restaurants and other places like hotels and institutions and made analysis of those meals for the amount of DDT that they contained and that, therefore, is a good measure of the intake that a person gets in eating at home or in a restaurant.

We fed volunteers 200 times the amount that you get per day.

Mr. DINGELL. How many parts per million is that?

Mr. SIMMONS. I do not know. It amounted to, I believe, 35 milligrams per man per day but I would have to check that.

Mr. DINGELL. Would you give us for the record at your convenience just how many parts per million that was?

Mr. SIMMONS. Yes, that could be calculated on the basis of the milligrams that he consumed as related to the weight of the individual.

Following daily feeding of 35 milligrams per man for a period of 1 year, fat biopsies assayed 234 parts per million where the commercial grade DDT was fed and 340 parts per million where the pure pp′ DDT was fed. The material was given in a milk base containing an equivalent of 350 parts per million. Calculated on the total diet, the concentration averaged 12½ parts per million.

Mr. DINGELL. All right.

Mr. SIMMONS. However, I might say that we have observed people that have had up to 900 parts per million of DDT and DDE in their fat.

Mr. DINGELL. What about aldrin and dieldrin and heptachlor? Heptachlor has now been given a zero tolerance for human beings by your Department, has it not?

Mr. SIMMONS. The heptachlor epoxide is the more toxic material.

Mr. DINGELL. Heptachlor turns into heptachlor epoxide but they both have received a zero tolerance from your Department.

Mr. SIMMONS. From the Food and Drug Administration.

Mr. DINGELL. How many times more toxic than DDT is heptachlor?

Mr. SIMMONS. I do not have that figure now.

Mr. DINGELL. It is many times more toxic, though?

Mr. SIMMONS. Probably about 1½ or 2 times.

Mr. DINGELL. How about heptachlor epoxide?

Mr. SIMMONS. Yes, it is more toxic.

Mr. DINGELL. These are residual and remain for long periods of years in soil.

Mr. SIMMONS. We have not done work on how long they remain in soil because our work has been principally with people.

Mr. DINGELL. How about aldrin?

Mr. SIMMONS. Aldrin is more toxic than DDT.

Mr. DINGELL. About 100 times as toxic?

Mr. SIMMONS. Not that much.

Mr. DINGELL. How much?

Mr. SIMMONS. I am not doing this research personally, you understand. Aldrin is more toxic than DDT, about three to four times as toxic. I would like to insert here tables showing the acute oral toxicity to rats of a number of pesticides.

(The tables follow:)

TABLE 2.—*The acute oral toxicity of chlorinated hydrocarbon pesticides to adult rats*

Compound	Males					Females				
	Number of rats tested	Survival time		LD_{50} (mg/kg)	19/20 confidence limits (mg/kg)	Number of rats tested	Survival time		LD_{50} (mg/kg)	19/20 confidence limits (mg/kg)
		Minimum (hours)	Maximum (days)				Minimum (hours)	Maximum (days)		
Aldrin	70	7	6	39.0	34.0– 44.0	50	6	14	60.0	50.0– 72.0
Chlordane	70	48	9	335.0	299.0– 375.0	70	48	9	430.0	391.0– 473.0
Chlorobenzilate	86	11	4	1,040.0	972.0–1,113.0	60	10	3	1,220.0	1,070.0–1,391.0
DDA [1]	70	5	8	740.0	607.0– 903.0	69	3	3	600.0	472.0– 762.0
DDE [1 2]	60	18	11	880.0	727.0–1,065.0	50	11	11	1,240.0	992.0–1,550.0
DDT	68	4	1	113.0	87.0– 147.0	58	6	1	118.0	106.0– 131.0
Dieldrin	70	4	6	46.0	41.0– 51.0	70	8	10	46.0	41.0– 51.0
Dieldrin (WWP)[3]	60	9	7	48.0	36.0– 63.0					
Endrin	90	6	9	17.8	14.7– 21.5	50	2	4	7.5	6.8– 8.3
Heptachlor	60	6	7	100.0	74.0– 135.0	90	5	11	162.0	140.0– 188.0
Isodrin	60	3	5	15.5	12.7– 19.1	70	2	8	7.0	6.0– 8.1
Kelthane [2]	70	28	12	1,100.0	909.0–1,331.0	70	23	18	1,000.0	820.0–1,220.0
Lindane	89	1	8	88.0	76.0– 101.0	69	2	7	91.0	83.0– 100.0
Perthane [2]	30		3	>4,000.0		10			>4,000.0	
Toxaphene	67	3	5	90.0	67.0– 122.0	60	4	1	80.0	70.0– 91.0

[1] Metabolites of DDT. DDA was administered as sodium salt in water.
[2] Given at dosage rates as high as 0.010 ml. per gram body weight.
[3] Water wettable powder given in water suspension.

Source: From Gaines, Thomas B., "The Acute Toxicity of Pesticides to Rats," Toxicology and Pharmacology 11(1). January 1960.

TABLE 4.—*The acute oral toxicity of organophosphorus pesticides to adult rats*

Compound	Males					Females				
	Number of rats tested	Survival time		LD_{50} (mg/kg)	19/20 confidence limits (mg/kg)	Number of rats tested	Survival time		LD_{50} (mg/kg)	19/20 confidence limits (mg/kg)
		Minimum (hours)	Maximum (days)				Minimum (hours)	Maximum (days)		
Bayer 29493	58	11.0	2	215.0	178.0– 260.0	60	8.0	3	245.0	213.0– 282.0
Chlorthion	79	1.0	7	880.0	816.0– 915.0	90	5.0	4	980.0	899.0–1,068.0
DDVP	59	(1)	(1)	80.0	62.0– 104.0	80	(1)	(1)	56.0	48.0– 65.0
Delnav	80	4.0	5	43.0	37.0– 50.0	50	3.0	5	23.0	19.0– 27.0
Demeton	70	1.0	5	6.2	5.4– 7.1	60	1.0	11	2.5	2.2– 2.8
Diazinon	150	1.0	2	108.0	96.0– 122.0	60	1.0	.25	76.0	66.0– 87.0
Dicapthon	49	5.0	5	400.0	357.0– 456.0	60	21.0	4	330.0	284.0– 383.0
Dipterex [2]	70	.5	2	630.0	568.0– 699.0	70	.5	9	560.0	455.0– 689.0
EPN	80	2.0	10	36.0	33.0– 40.0	80	48.0	5	7.7	6.9– 8.6
Guthion	70	1.0	1	13.0	12.0– 14.0	80	1.0	2	11.0	10.0– 13.0
Malathion	60	1.0	12	1,375.0	1,206.0–1,568.0	67	1.0	1	1,000.0	885.0–1,130.0
Methyl parathion	68	1.0	8	14.0	12.0– 17.0	60	1.0	3	24.0	22.0– 28.0
Parathion	50	1.0	3	13.0	10.0– 17.0	70	2.0	3	3.6	3.2– 4.0
Phosdrin	50	(1)	(1)	6.1	5.2– 7.1	50	(1)	(1)	3.7	3.0– 4.5
Ronnel	70	.5	5	1,250.0	906.0–1,725.0	50	8.0	5	2,630.0	2,287.0–3,025.0
Schradan	50	1.0	6	9.1	8.1– 10.2	50	2.0	18	42.0	32.0– 55.0
Thimet	70	2.0	4	2.3	1.2– 2.8	80	2.0	2	1.1	1.0– 1.3
Trithion	120	1.0	6	30.0	27.0– 34.0	80	2.0	2	10.0	6.0– 18.0

[1] Died within an hour after dosed.

[2] Given in 10 percent water solution at dosage rates as high as 0.01 ml./g.

Mr. DINGELL. Thank you very much.

Mr. MILLER. Mr. Zincke?

Mr. ZINCKE. Doctor, you stated that a committee has been functioning since 1945 and that there has been cooperation between these departments. How effective has that cooperation been?

Mr. SIMMONS. It has been effective to the extent that each department usually knew any large undertakings of the other and it was through this interdepartmental committee that a group has been formed to undertake cooperative planning for actual release of information and cooperative research.

For instance, a great deal of the trouble in areas where we have encephalitis is due to irrigation practices.

Now, the Public Health Service does not have a very good way to get information to the farmer but, by working with the Soil Conservation people and with the Agricultural Extension people and combining our information, and the Fish and Wildlife people are always on that working group, we can channel it down where it can do the most good.

I think there has been rather close cooperation and I would consider it satisfactory.

Mr. ZINCKE. Specifically on this fire ant program, what you are saying is that your interdepartmental committee was aware of the program but was not in a position to do anything to control it, is that correct?

Mr. SIMMONS. The interdepartmental committee has no authority, as such.

Mr. ZINCKE. Then they just acquired the knowledge and it rested there?

Mr. SIMMONS. It was discussed at the interdepartmental committee where representatives were all present.

Now, we had no part in the fire ant program except that we were asked to comment on the health hazard to people that might be involved, and that was the extent of our knowledge of it.

Mr. ZINCKE. But the point is that neither this interdepartmental committee nor any other similar group had any control over specifically that program?

Mr. SIMMONS. That is right. None of these committees have any authority as far as enforcing any type of control. It is a voluntary type of coordination.

Mr. ZINCKE. That is all I have.

Mr. MILLER. I think we have that in other areas of Government, too. It is one of the things that we have to try to correct in Government.

As I say here I was thinking we now talk about background radiation but we have, I think, the background toxicity that we all get from these new drugs.

Thank you very much, Doctor.

Mr. O. E. Frye? Mr. Frye is to testify on behalf of the Southeastern Association of Game and Fish Commissioners. He comes from the State of Florida.

STATEMENT OF O. E. FRYE, SOUTHEASTERN ASSOCIATION OF GAME & FISH COMMISSIONERS, STATE OF FLORIDA

Mr. FRYE. Thank you very much, Mr. Chairman.

I have a resolution from the Southeastern Association of Game & Fish Commissioners, which I will not read. It supports the principle of H.R. 11502.

Mr. MILLER. In the interest of time, if you want to submit it, we will put it in the record.

Without objection, it will become part of the record.

(The resolution follows:)

RESOLUTION

Whereas the uses of pesticide chemicals are causing serious damage to our fish and wildlife and the trend toward greater use of these insecticides for the control of various pests could be disastrous to certain important wildlife species; and

Whereas immediate action needs to be taken to prevent the disastrous results of the continued widespread and indescriminate application of insecticides known to be deadly poisonous to many types of life, including in some cases human beings: Be it

Resolved, That the Southeastern Association of Game & Fish Commissioners at its regular business meeting at Atlanta, Ga., on April 25, 1960, go on record as supporting legislation along the lines provided for in H.R. 11502. The association urges Congress to enact this legislation. The association although strongly favors this legislation as provided for in H.R. 11502, feels that this legislation may not be strong enough to assure the protection of our wildlife and human life from these dangerous insecticides and urges Congress to consider additional legislation either by amendments to this present bill or by an additional act to further safeguard our fish and wildlife resources.

Adopted this 25th day of April 1960, Atlanta, Ga.

JAMES W. WEBB,
Secretary-Treasurer, Southeastern Association of Game & Fish Commissioners.

Mr. FRYE. I would also like to speak briefly in behalf of the State of Florida, which is one of the States which has been involved in this fire ant control program. Our State agency that handles the fire ant control program has officially admitted that the program cannot be effectively carried out under anything that approaches a reasonable amount of money. So they have officially eliminated the term "eradication" and are now talking about "control."

We feel very strongly that inevitably programs such as the fire ant program are started based on emotionalism and political pressure of one kind or another with no basis in research findings and we heartily endorse legislation on a national level that will at least handle the national picture and set a precedent for the States' programs.

Mr. MILLER. Are there any questions? Mr. Dingell.

Mr. DINGELL. Yes.

Has this fire ant program resulted in any diminution in the number of fire ants in your part of the country?

Mr. FRYE. Yes, sir. It has resulted in some control of fire ants but apparently from what we can determine it has not effectively controlled the fire ants. There are more fire ants in Florida now than there were when the program started. At least, they cover a much wider acreage.

Mr. DINGELL. How is this fire ant control work conducted? It is aircraft spraying, is it not?

Mr. FRYE. It is aircraft and some hand spraying. The largest acreages would be covered by aircraft.

Mr. DINGELL. What has been the result of this on game and fish resources in the area?

Mr. FRYE. There are innumerable cases of documentation throughout the southeast that have shown that almost without exception wildlife was very seriously damaged and in some cases entirely eliminated. There have been recoveries of wildlife on some of the treated areas. The quail would be eliminated and would recover, but interestingly enough, the fire ants would come back about as rapidly as the quail did.

Mr. DINGELL. What is the substance that is used for this control?

Mr. FRYE. Heptachlor, principally.

Mr. DINGELL. Does this leave residues in the soil?

Mr. FRYE. Yes, sir.

Mr. DINGELL. Do these residues have an impact on the wildlife conservation in the area?

Mr. FRYE. Yes, sir. Actually, many of us are more concerned about the long-term effects of these residues than of these control measures. We are afraid that we may upset a balance.

We are much more concerned about that than we are actually the direct mortality resulting from the treatments.

Mr. DINGELL. I would like to read you a question that was asked Mr. Popham of the Agricultural Research Service by Senator Holland of Florida:

We have had very many objections not only from the fish and game people but also from special groups, like the Audubon groups. They say that they have found thousands and thousands of dead birds, songbirds, both migratory birds and resident birds. Have you had any complaints?

To which Mr. Popham of Agricultural Research Service replied:

Yes, we have heard it, but we have not been able to confirm those heavy losses. There have been some losses associated with the treatment usually traceable to water, perhaps from certain storms following treatment where the birds were able to get some poison from the water. But as we have followed the program over a period of 2 years, even in areas where there have been some noticeable losses, recovery has been very rapid.

Has the recovery of wildlife been very rapid?

Mr. FRYE. In some areas recovery has occurred after 3 years; not always at the same levels of bird populations that did exist but there has been some recovery and it depends largely on the size of the area.

Mr. DINGELL. Does this affect other wildlife mammals like raccoons and rabbits and deer and wild turkey?

Mr. FRYE. Yes, sir.

Mr. DINGELL. Let me ask you this question. Have you made complaints to the Department of Agriculture about the way they have been conducting this program?

Mr. FRYE. Yes, sir; and also our own State agency.

Mr. DINGELL. What have they done about these complaints?

Mr. FRYE. I will say this for our State agency.

Mr. DINGELL. You are referring to the Florida Game and Fish Agency?

Mr. FRYE. I am referring to the State Plant Board in Florida.

Mr. DINGELL. Have they made complaints to the Agriculture Department?

Mr. FRYE. No; we have made complaints to our State agency and also to the Agriculture Department.

Mr. DINGELL. What have they done about these complaints?

Mr. FRYE. We do not feel that they have been given the attention that we would like to have them given.

Mr. DINGELL. Why do you say that?

Mr. FRYE. Well, so frequently there is an attitude of "Well, it doesn't happen. That is what you say but it doesn't happen. You don't have qualified people to evaluate these things."

Mr. DINGELL. Do you have qualified people?

Mr. FRYE. Yes, sir.

"Our farmers feel that no game is killed."

We get reactions like that.

We find that the only place that we find no damage done by heptachlor are those areas that our people do not study. That is about the size of it.

Mr. DINGELL. Have you made careful studies of these areas that have been damaged?

Mr. FRYE. Yes, sir; not as extensive as in certain other States such as Alabama, Texas, and Louisiana.

Mr. DINGELL. Would you submit some of your studies to this committee?

Mr. FRYE. Yes, sir.

Mr. DINGELL. Would you also tell us how you communicated with the Department of Agriculture about this program? Was it by letter?

Mr. FRYE. Yes, sir; we dealt principally with our State plant board.

Mr. DINGELL. Now, returning to this resolution of the Southeastern Game & Fish and Conservation Commissioners, are they in opposition to the manner in which this fire-ant program has been conducted?

Mr. FRYE. Yes, sir.

Mr. DINGELL. Have you consulted with other game and fish commissioners and officers of game and fish commissions in other States?

Mr. FRYE. Yes, sir; in fact, I am representing all of the Southeastern States.

Mr. DINGELL. You are authorized to appear in behalf of the Southeastern States? What States?

Mr. FRYE. Florida, Georgia, Louisiana, Alabama, Kentucky, Tennessee, Virginia, North Carolina, South Carolina, Maryland, and Mississippi; I believe that is all.

Mr. DINGELL. In how many of these States is this fire-ant program conducted?

Mr. FRYE. I know Louisiana, Mississippi, Alabama, Florida, Georgia, and South Carolina.

Mr. DINGELL. Can you get this committee as much material as possible on the impact of this fire-ant control program on fish and wildlife?

Mr. FRYE. Yes, sir.

Mr. DINGELL. And also any information of complaints by State officials to the Department of Agriculture on the use of this particular program and the impact on wildlife. Have you noticed any impact on deer populations?

Mr. FRYE. No, sir.

Mr. DINGELL. I am trying to clear up some points.

Mr. MILLER. Go right ahead.

Mr. DINGELL. I have one last question.

Are there any other programs conducted by the Department of Agriculture in your area that would be comparable to this fire-ant program?

Mr. FRYE. Yes, sir; there has been one program conducted in the control of the screwworm fly which was done by radiating male screwworm flies and releasing them. It is a program that we endorse. It is specific. It applies only to screwworm flies.

I think the Mediterranean fruitfly program in Florida was effective.

Mr. DINGELL. Did it destroy wildlife?

Mr. FRYE. No, sir.

Mr. DINGELL. How was it conducted?

Mr. FRYE. Different chemicals were used. I think they used principally aldrin, I believe. It was done by aerial spraying on grove lands.

Mr. DINGELL. Did you notice any diminution in wildlife after that?

Mr. FRYE. Not serious.

Mr. DINGELL. Was it relatively minor?

Mr. FRYE. Yes, sir. We recognize that these programs have to be carried out but we feel that they should be carried out with judgment and planning rather than as was the case in Florida, strictly politically and emotionally.

Mr. DINGELL. How many pounds of this heptachlor have they used per acre in this control program? Do you know?

Mr. FRYE. They started using 2 pounds and have reduced to one-quarter of a pound.

Mr. DINGELL. Are you still finding game losses at this one-fourth-pound level.

Mr. FRYE. Yes, sir.

Mr. DINGELL. Do they compare with the previous losses?

Mr. FRYE. We have no quantitative data on that.

Mr. DINGELL. Was this program effective in eradicating fire ants at the 2-pound-per-acre level?

Mr. FRYE. The fire-ant control people think that it is. They say that two applications of one-quarter pound is effective.

Mr. DINGELL. It is effective in eradicating fire ants?

Mr. FRYE. Yes, sir; according to the fire ant control workers.

Mr. DINGELL. How about wildlife?

Mr. FRYE. It is not as dangerous. We do not think that the losses were as severe although we have no quantitative information on that.

Mr. DINGELL. How about fish?

Mr. FRYE. Fish are extremely intolerant of heptachlor.

Mr. DINGELL. How about human beings? Do you know what the effect of this material is on human beings?

Mr. FRYE. No, sir.

Mr. DINGELL. It is delisted by the Food and Drug for foods. They list a zero tolerance for it.

Mr. FRYE. I do not feel that I am qualified to comment on that.

Mr. DINGELL. Is there anything else that you would like to add?

Mr. FRYE. No, sir; except that we certainly hope that Congress will enact legislation of this type and we hope that it will set a pattern that can be followed in the States.

Mr. DINGELL. Thank you very much.

Mr. MILLER. Do you have any questions?

Mr. ZINCKE. No, sir.

Mr. DINGELL. The committee will stand adjourned until 10 o'clock tomorrow morning when hearings on H.R. 11502 will be resumed.

(Whereupon, at 12:20 p.m., the committee adjourned, to reconvene at 10 a.m., Wednesday, May 4, 1960.)

Mr. Frye. No, sir; except that we certainly hope that Congress will enact legislation of this type and we hope that it will set a pattern that can be followed in the States.

Mr. Dingell. Thank you very much.

Mr. Zincke? Do you have any questions?

Mr. Zincke. No, sir.

Mr. Dingell. The committee will stand adjourned until 10 o'clock tomorrow morning when hearings on H.R. 11002 will be resumed.

(Whereupon, at 12:35 p.m., the committee adjourned, to reconvene at 10 a.m., Wednesday, May 4, 1960.)

COORDINATION OF PESTICIDES PROGRAMS

WEDNESDAY, MAY 4, 1960

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON FISHERIES AND
WILDLIFE CONSERVATION OF THE
COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to adjournment, in room 219, Old House Office Building, Hon. John D. Dingell presiding.

Present: Representatives Dingell, Van Pelt, Curtin, and Hoffman.

Staff member present: Bernard J. Zincke, counsel.

Mr. DINGELL. The committee will come to order.

The first witness that the committee will hear this morning on H.R. 11502 will be Mr. Daniel H. Janzen, Director, Bureau of Sports Fisheries and Wildlife, Fish and Wildlife Service.

Mr. Janzen, do you have anyone with you that you would like to bring up?

STATEMENT OF DANIEL H. JANZEN, DIRECTOR, BUREAU OF SPORT FISHERIES AND WILDLIFE; ACCOMPANIED BY PAUL E. THOMPSON, CHIEF, BRANCH OF FISHERY RESEARCH, BUREAU OF SPORT FISHERIES AND WILDLIFE; DR. JAMES B. DeWITT, CHIEF, CHEMICAL PHYSIOLOGICAL AND PESTICIDES, BUREAU OF SPORT FISHERIES AND WILDLIFE; JOHN B. GLUDE, ACTING CHIEF, BRANCH OF BIOLOGICAL RESEARCH, BUREAU OF COMMERCIAL FISHERIES, FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

Mr. JANZEN. Yes, sir, I do. I have some staff members here that I would like to have with me.

Mr. DINGELL. Would you introduce them? They will be more than welcome.

Mr. JANZEN. Dr. DeWitt, who is in charge of our Chemical Research work at the Patuxent Laboratory.

Mr. DINGELL. That is Dr. James DeWitt.

Mr. JANZEN. John Glude, who is in charge of this work in the Commercial Fisheries Bureau, and Mr. Paul Thompson, who is in charge of our research work in the Fish and Wildlife Service.

Mr. DINGELL. You are going to give the views of the Fish and Wildlife Service, are you?

Mr. JANZEN. That is right, sir.

Mr. DINGELL. Gentlemen, you are certainly very welcome.

Do you have a prepared statement?

Mr. JANZEN. I have a statement I would like to read.

Mr. DINGELL. Very good.

Mr. JANZEN. The Department, I believe, has now submitted to the committee its official position on this bill.

The members of this committee are familiar with the background of the subject to which H.R. 11502 is intended to apply. In 1958, as a result of favorable action by this committee and the Congress, the U.S. Fish and Wildlife Service was granted specific authority to engage in research on the effects of the various pesticidal chemicals on fish and wildlife.

Last year this committee recognized the urgency of expanding their research and favorably reported on a bill, which became Public Law 86–279, which resulted in the authorized fiscal ceiling being raised from $280,000 to $2,565,000 per year.

To properly appraise the effects of H.R. 11502 if it were enacted, I should like to briefly describe where we are currently in the stepped-up research program. There are four broad phases of study now underway.

The essential first step is to learn the effects on fish and wildlife of the more than 200 basic chemical pesticides already formulated and available on the commercial market. Minimum lethal dosages for quail and pheasants have been established for 18 of these. Less is known about the direct effects of these chemicals on fish.

The second phase is to field test laboratory results to check their validity under field conditions. Only two of the chemicals have been subjected to extensive field tests.

The third phase involves field surveys to appraise the effects of large-scale control programs. With the limited facilities available at the time the fire-ant control program was started we decided to devote almost our entire efforts to the appraisal of this program. That was a little over 2 years ago. We shall probably conclude our studies of the long-range effects on quail of 2 pounds of heptachlor or dieldrin per acre for fire-ant treatment by next winter. We have completed surveys on the immediate effects on song birds of Dutch elm disease control for shade trees in and around Madison, Wis.

The fourth phase involves work on modifications of formulations and control techniques designed to lessen the effect of those chemicals on fish and wildlife. This part of the study is just getting underway.

From the foregoing you can see that we still have hardly scratched the surface in the field of evaluating the effects of these chemicals on fish and wildlife, and need much more information concerning the effects of the more commonly used pesticides on fish and wildlife. With few exceptions we are not yet in a position to recommend control methods that do not have deleterious effects on these resources.

Now turning to the provisions of H.R. 11502, the major features are that any Federal official or agency must consult with the Fish and Wildlife Service and the State fish and wildlife agency before initiating or providing financial or other assistance for any control program using chemical pesticides; that information concerning the program is to be furnished the Fish and Wildlife Service before this consultation; that the Fish and Wildlife Service shall advise of the wildlife damages that may occur from the proposed programs and cooperate to devise control methods that minimize the undesirable effects on

wildlife; that if the officer or agency fails to take actions recommended by the Fish and Wildlife Service, the Service shall immediately report to the Congress and that the Secretary of the Interior, by regulation, may exclude programs which are limited in nature or when the chemicals have been proven to cause little or no damage to wildlife.

The Bureau of Sport Fisheries and Wildlife endorses the objective of the bill—that of alleviating fish and wildlife losses resulting from the numerous chemical control programs. At the same time there is general agreement that the use of various pesticides is essential to economically sound agriculture, forestry, and public health. The problem is to find adequate means of achieving the necessary degree of pest control and still leave fish and wildlife resources unharmed.

The Fish and Wildlife Service believes that enactment of H.R. 11502 would be premature. We feel that there are a number of provisions in the bill which make its administration impracticable. The progress of research, referred to above, has not reached the stage where we can make positive recommendations on how to modify many of the control programs. At this time, we can offer but little effective information, and, therefore, it is not feasible to require agriculture and forestry to forego necessary protection from insects, unwanted vegetation, and other pests until more complete data are gathered on the immediate and long-term effects of each control agent.

We would like to suggest to the committee that perhaps a better course to be taken in reaching the objectives would be through amendment of the act of August 1, 1958 (72 Stat. 479), as amended, which authorizes and directs the Secretary of the Interior to study the effects of chemicals on fish and wildlife resources and to determine the amounts of such chemicals which are injurious to such resources and the amounts which can be safely used.

This amendment would spell out the procedure needed to provide the desired coordination and exchange of information between Federal agencies.

It would provide that the Secretary of the Interior through periodic reports keep other Federal agencies informed concerning the progress and findings of research on the pesticide-fish and wildlife relationships.

Federal agencies would be directed to cooperate with and advise the Secretary concerning any pest control programs currently in operation or contemplated. It would provide that the Secretary alert any particular agency which might plan to use a control method which the research program findings indicated would have an injurious effect on fish and wildlife resources. In case such agency, because of other considerations, wished to continue with the questionable method, it would be required to inform the Secretary as to the reason therefor. Congress would be kept informed by the Secretary by means of annual reports. Such an approach, the Department believes, would be more practical considering the current status of our research findings.

That concludes my statement, Mr. Chairman.

Mr. DINGELL. Mr. Hoffman?

Mr. HOFFMAN. I have no questions.

Mr. DINGELL. Counsel?

Mr. ZINCKE. Mr. Janzen, turning to the last paragraph on page 2 of your report in which you set forth the major features of this particular bill, you state that any official or agency must consult with the Fish and Wildlife Service and the State fish and wildlife agency before going ahead with any control program, that information must be furnished to Fish and Wildlife Service before the consultation.

Now, are there any particular objections to those two steps?

Mr. JANZEN. I think that probably comes pretty close to what we are suggesting in the amendment.

Mr. ZINCKE. There is certainly no objection to having another agency furnish you information concerning a program, is there?

Mr. JANZEN. No; that is correct. That is the part which we would recommend. Yes, sir.

Mr. ZINCKE. There is no objection to having the agency ask you whether you have any information that would indicate that the program would be unduly dangerous, is there?

Mr. JANZEN. No, sir; that would be desirable.

Mr. ZINCKE. There is no objection to the fact that the Fish and Wildlife Service is to advise of the wildlife damages that may occur from the program?

Mr. JANZEN. Within its ability. That is right.

Mr. ZINCKE. And that, if you have any information with respect to controlling such danger, there is no reason why you should not give that to the other agency, is there?

Mr. JANZEN. No; that is correct, sir.

Mr. ZINCKE. Is there any particular objection to the provision that, if the agency fails to take the actions that you suggest, that the Service reports that fact to the Congress? There is no secret about it, is there?

Mr. JANZEN. There is no secret about that; no.

Mr. ZINCKE. There is no objection to notifying Congress of the fact that they are going ahead with a program that might prove detrimental to wildlife, is there?

Mr. JANZEN. I expect I would have to answer that, as far as I am personally concerned, there is not, sir.

Mr. ZINCKE. Would there be an attempt to withhold information from Congress?

Mr. JANZEN. No, sir; there would be no objection to that. It was thought that this could be submitted in periodic reports rather than each time that there appeared that there was something that was not quite in line with what we thought should be done.

Mr. ZINCKE. Then your basic objection to this bill is the fact that it would require reports on each program rather than periodic reports. I am taking your analysis of this bill now.

Mr. JANZEN. Yes; I understand. That is a question that received considerable consideration and it was felt that it would be more desirable if this information was submitted periodically to Congress in the form of summarized reports on the current situation.

Mr. ZINCKE. That is the basis of your objection to this bill, then?

Mr. JANZEN. We believe that, as an amendment to the research bill, it would probably tie this all up in one act. Now, whether that has any merit or not, I am probably not quaified to say.

Mr. ZINCKE. Then your objection is based on two points: one, that this would result in two acts instead of one, and the second, that this bill would require individual reports rather than periodic reports?

Mr. JANZEN. I think the answer to your last question would be "Yes."

Mr. ZINCKE. And you state a subsidiary objection to the bill that it would be administratively impractical because you do not have sufficient information on the effect of these chemicals at the moment.

Now, would there be any objection when an inquiry is made of you by another agency to your saying, "We do not know what the effect is and therefore we cannot comment on your program"?

Mr. JANZEN. That would have to be our answer; yes, sir.

Mr. ZINCKE. There is nothing administratively impractical in that, is there? It may be a little embarrassing to admit that you do not know but there is nothing administratively impractical about it, is there?

Mr. JANZEN. I think if that is thoroughly understood that we would not be in a position to furnish the type of information that would be expected under this bill, then I think you are right.

Mr. ZINCKE. Is it not reasonable to assume that in the course of time, more or less time depending on your activity, that you would be in a position to furnish this information?

Mr. JANZEN. That is what we hope, exactly, sir.

Mr. ZINCKE. That is all I have, Mr. Chairman.

Mr. DINGELL. I was wondering, does the Department of Agriculture check with the Fish and Wildlife Service now before they commence any large scale spraying programs?

Mr. JANZEN. Yes; there is a system of cooperation which has been set up between the Department of Agriculture and the Department of the Interior which calls for our getting together periodically to discuss current programs.

Now, to answer your question more fully, there are some complications in connection therewith. Sometimes as to coordination at the field levels, because many of these programs are carried out through State departments of agriculture, the programs appear to move along a little faster than the information that they are going to start comes to us.

A cooperation has been worked out between the Department of Agriculture and the Department of the Interior; yes, sir.

Mr. DINGELL. Have they ever specifically cleared the fire-ant program with you?

Mr. JANZEN. They have not cleared the program with us as such.

Mr. DINGELL. Have they ever consulted with you on the amount of pesticide that should be used per acre?

Mr. JANZEN. Not as to the amount of chemicals to be used per acre. We have consulted with them from time to time on the effects that we believe these chemicals have on fish and wildlife; yes, sir.

Mr. DINGELL. Do you not think that it is a fairly important thing that they should clear with you the amount of pesticide that they propose to use per acre? Is that not one of the vital parts of the impact of such spraying upon fish and wildlife?

Mr. JANZEN. We think that certainly our recommendations should get very serious consideration.

Mr. DINGELL. Have they been getting serious consideration?

Mr. JANZEN. I am not prepared to say whether they have or whether they have not. I do know that they have reduced the amount of some of the chemicals that they are using per acre.

Mr. DINGELL. This consultation that takes place between your Department and the Department of Agriculture actually takes the form of discussions of programs and chemicals, is that right? It does not deal with any specific program, though?

Mr. JANZEN. I would like to have that answered by one of our staff members who has been actively participating in the program.

Mr. DINGELL. Would you give your name for the record?

Mr. JANZEN. James B. DeWitt.

The consultations with the Department of Agriculture to date have consisted very largely of a review of the programs which are in progress or which have been completed.

In some discussions with the Forest Service, we have discussed program planning in advance.

Mr. DINGELL. Have you ever discussed in any great length the fire-ant program?

Mr. DEWITT. At considerable length on several occasions.

Mr. DINGELL. Have you ever gotten the Department of Agriculture to accept any specific recommendations that you have made in these consultations?

Mr. DEWITT. I am afraid, sir, that we have been unable, due to the lack of research information, to make a specific recommendation for modifying the program. We have advised the Department of Agriculture on the probable effects of certain applications and on the observed effects of these applications.

Mr. DINGELL. What have they done as a result of these observations?

Mr. DEWITT. As Mr. Janzen has said, the amount of chemical used in the program has been reduced during the past 2 years. We do not know the relationship between our comments and the reduction.

Mr. DINGELL. I have one last question, Mr. Janzen. A statement has been made here that coordination is impossible because of the need for conducting apparently quick programs or crash programs. How long before a large-scale program of spraying is begun does the appropriation process begin?

Mr. JANZEN. I think that is a question that I am not qualified to answer.

You are refering now to the programs being carried on by a control agency?

Mr. DINGELL. That is right.

Mr. JANZEN. I think that probably the Department of Agriculture would have to answer that.

Mr. DINGELL. How long before you take on a control program do you go to the Bureau of the Budget for money?

Mr. JANZEN. We start the budgetary processes in the April previous to the following July for the following fiscal year. It would be about 15 months.

Mr. DINGELL. The budgetary processes generally have a leadtime of about how much?

Mr. JANZEN. Well, preliminary about 15 months. The last opportunity for changes would probably be about 8 months before it would be effective the following July.

Mr. DINGELL. Mr. Van Pelt?

Mr. VAN PELT. I have no questions.

Mr. DINGELL. Are there any further questions? Counsel?

Mr. ZINCKE. I have no questions.

Mr. DINGELL. Gentlemen, thank you very much for your help this morning.

Mr. JANZEN. Thank you, Mr. Chairman.

Mr. DINGELL. The next witness will be Dr. W. L. Popham, Deputy Administrator, Agricultural Research Service, Department of Agriculture.

Doctor, do you have anybody you would wish to bring to the witness stand with you this morning?

STATEMENT OF W. L. POPHAM, DEPUTY ADMINISTRATOR, AGRICULTURAL RESEARCH SERVICE; ACCOMPANIED BY D. R. SHEPHERD, ASSISTANT DIRECTOR, PLANT PEST CONTROL DIVISION, AGRICULTURAL RESEARCH SERVICE; W. V. BENEDICT, DIRECTOR, DIVISION OF FOREST PEST CONTROL, FOREST SERVICE; AND S. P. LEJKO, ASSISTANT TO THE ADMINISTRATOR, AGRICULTURAL RESEARCH SERVICE, DEPARTMENT OF AGRICULTURE

Mr. POPHAM. Yes, sir; I have Mr. W. V. Benedict, Director, Division of Forest Pest Control, Forest Service, Mr. D. R. Shepherd, who is Assistant Director of the Plant Pest Control Division, Agricultural Research Service, and Mr. S. P. Lejko, Assistant to the Administrator of the Agricultural Research Service.

Mr. DINGELL. Do you have a prepared statement?

Mr. POPHAM. Yes, sir.

Mr. Chairman and members of the committee, thank you for the invitation extended to the Department to discuss H.R. 11502, a bill providing for advance consultation with the Fish and Wildlife Service and with State wildlife agencies before undertaking any Federal program involving the use of pesticides or other chemicals designed for mass biological control.

The Department of Agriculture recommends against enactment of this bill. Federal and State agencies engaged in pest control activities are now cooperating to minimize the adverse effect of pesticides on fish and wildlife. The Department of Agriculture and the Department of the Interior both have responsibilities in the conservation of our natural resources. These two agencies have a long history of close working relationships. The Department therefore believes this legislation is unnecessary.

The proposed legislation places primary emphasis upon the protection of fish and wildlife, thus subordinating other values vital to our national welfare such as the production and marketing of food and fiber, the management of our forest resources, and even the health of our people.

Agricultural chemicals occupy an essential place in the prevention, the spread, suppression, or eradication of pests new to this country and capable of doing irreparable damage. Such programs may at any time involve some pests that are vectors of human disease—and others that attack and damage or destroy food, feed, and fiber crops. Still others may attack livestock as parasites or serve as vectors of

animal diseases. We do not believe that safeguarding our food supplies and the public health should be secondary.

None of the basic crops that contribute to the high standard of living that we now take for granted can be grown successfully without protection from insects and diseases. In many instances this protection must begin before the seed goes into the ground, carry through until harvest, and on into marketing channels. Among the crops requiring continuing protection from pests and diseases on an annual basis are corn, cotton, beans, peas, tomatoes, potatoes, apples, peaches, citrus, sugarcane, sugar beets, cherries, and other soft fruits. The same applies to crops grown primarily for livestock feed. To give us this protection we have no substitute for chemicals. The Department recognizes their importance and assumes responsibility, along with State experiment stations, for recommending their safe use.

Pest control programs which involve the treatment of State and private lands are carried out under State authority with financial support of the States. They are jointly planned and directed by the Federal and State agencies concerned. Programs on Federal lands are planned jointly by the Federal agencies concerned.

There has been misunderstanding and many misleading reports concerning the Department's participation in pest control programs. When Congress authorizes the Department to participate with the States in the supervision and financing of a program aimed at preventing the spread, suppressing, or eradicating of a plant or animal disease or an insect pest, such programs fall generally in two broad categories.

The first includes programs directed against insects and diseases new to this country and not yet widely established. Many such pests are capable of causing great damage if permitted to spread throughout the area where their host crops are grown. If they can be detected and eradicated we can avoid the necessity of combating them on an annual basis and thus eliminate the need for recurrent use of pesticides.

The second category includes pests that are established in this country and outbreak periodically, laying waste to crops, native grasses, or forest resources over wide areas. Included in this group are such pests as grasshoppers, Mormon crickets, spruce budworm, and the Eggleman bark beetle. Pests of this kind cannot be successfully controlled by individual effort. Treatment must be applied on an areawide basis, under supervision of trained technicians to insure efficient utilization of the best and safest tools our scientists can produce.

To further emphasize the importance of the preventive approach to pest control, more than half of the highly destructive pests in this country are of foreign origin. Among some of the better known are the boll weevil and pink bollworm of cotton, the European corn borer, Mexican bean beetle, Japanese beetle, gypsy moth, codling moth, the cattle fever tick, and the hornfly of livestock. Once a new pest of this destructive potential gains a bridgehead in this country, we have no practical choice but to attempt to contain or eradicate it. Once a pest is eliminated there is no further need for pesticides.

In carrying out these programs there is frequent consultation among scientists of the Departments of Agriculture, Interior, Health, Education, and Welfare, and other agencies.

Scientists have warned repeatedly that fertilizers, insecticides, weed killers and other agricultural chemicals have become as essential in the production of our food as are tractors, improved varieties of crops, and better breeds of livestock. They play as great a part in assuring consumers a continuing supply of nutritious and appetizing foods as do our modern methods of food processing and marketing.

We cannot continue to produce adequate amounts of food for the people of this country without chemicals. They give indispensable protection to the natural excellence of these foods against the ravages of pests and diseases. In large part because of chemicals, American consumers enjoy fruits, vegetables, cereals, meat, poultry products, and milk of unexcelled quality and freedom from contamination.

The amount of pesticides used in programs sponsored and financially supported by the Department of Agriculture account for about 3 percent of the pesticides used annually in the United States. In 1959 such programs required about 7.5 million pounds of chemicals. Total domestic use of pesticides that year was approximately 250 million pounds.

Congress directs the Department to cooperate with States in the eradication or control of animal and plant pests. Such programs are initiated only when it is clearly established that the problem is of interstate or national interest, and when coordinated and supervised effort is needed to achieve the desired objectives. All programs in which the Department participates are reviewed annually with appropriate committees of Congress.

The Departments of Agriculture and Interior have established active liaison to review new research information which will lead to effective pest control and minimize risks to wildlife. Responsible officials of the two agencies meet frequently to discuss problems of mutual interest. They are engaged cooperatively in field studies which will add to our present knowledge. Both agencies are actively supporting a committee of the National Research Council which is studying pesticide-wildlife realtionships.

I would like to cite a few examples of the cooperative work done in this field. In connection with the imported fire ant program, representatives of the Fish and Wildlife Service and the Agricultural Research Service participated with agriculture and conservation agencies of the State of Alabama in a study to measure the effects of granular insecticides on wildlife when applied to the soil. These granular insecticides are relatively new. The treatment was applied by the Federal and State Agricultural Departments to a 4,000-acre study area near Camden, Ala. The U.S. Agricultural Research Service employed a wildlife biologist to work as a member of the research team.

In 1959 a small area in Louisiana was treated by the Agricultural Research Service specifically so that the Fish and Wildlife Service could study the effects of a granular insecticide on the woodcock.

Recently a small acreage was treated in Alabama to permit the Fish and Wildlife Service to study the effects on quail of the new insecticide dosage for fire ant eradication. That is a split application of a quarter pound each at 3- to 6-month intervals.

Similar arrangements have permitted the Fish and Wildlife Service to study the effects on wildlife of various treatments used to control Mormon crickets and grasshoppers. Some of these cooperative studies, which are still going on, date back 15 years.

As early as 1945 also we cooperated with the Fish and Wildlife Service in studies on the use of DDT for control of the gypsy moth. This work demonstrated the safety of the currently recommended dosage of 1 pound per acre.

During the period 1956–59 the USDA's Forest Service initiated a study in Montana on how fish and aquatic organisms were affected by spraying to control spruce budworm. This was a joint study with the Fish and Wildlife Service and the Montana State Fish and Game Department. The Forest Service regularly informs the Fish and Wildlife Service and State fish and game departments of its plans for forest pest control and asks their advice on the adequacy of precautionary measures to minimize damage to fish and wildlife.

The U.S. Department of Agriculture and the States are often confronted with emergency situations, in which control of an incipient outbreak of a new pest requires prompt attention. In such cases, time is an extremely important factor.

An example is witchweed. This highly destructive parasite of corn, sorghum, sugarcane, and certain other crops of the grass family, was first discovered in this country in contiguous areas of North Carolina and South Carolina in the late summer of 1956. Its principal host crops have an annual value of $5 billion. Immediate action had to be taken to prevent this pest from spreading to the principal corn, sorghum, and sugarcane areas of the country. Prompt use of chemicals was essential. Information on the possible effects of these chemicals on local wildlife was not available, and time did not permit an extensive study to be made. Fortunately, in this case, there have been no adverse effects on wildlife.

The Mediterranean fruitfly is another destructive pest that called for fast action. It was discovered at Miami, Fla., in the spring of 1956. The infestation threatened severe and continuing annual damage not only to the 300 million citrus industry in Florida but to citrus, soft fruits, and certain vegetables throughout the South and Southwest. The Medfly was eradicated in 18 months by an all-out spray campaign. Here again, time permitted no full-scale advance study of the hazard to wildlife. However, all possible precautionary measures to protect fish were taken, and no significant damage occurred. Since the insecticide used was malathion, other wildlife was not threatened.

The lack of effective eradication methods for pests that got into this country years ago has left us with costly control operations which account for a large share of the pesticides farmers use today.

The European corn borer, for example, became established in this country about 40 years ago. Had modern tools been available at that time, the infestation could have been eradicated when still confined to a relatively small area in Massachusetts. But without adequate controls, the corn borer spread throughout much of the area where corn is commercially grown. Farmers must now use DDT every year to protect this important crop. But in spite of these treatments, corn borers still destroy corn worth $80 to $100 million a year.

The boll weevil, another introduced pest requiring chemical control, destroys a million bales of cotton annually, valued at more than $150 million. In Alabama alone, cotton farmers use 20 million pounds of chemicals a year to control cotton insects, just one crop, principally the boll weevil.

The Department is currently participating with a number of States in an effort to prevent further spread of the Japanese beetle, which attacks some 300 different species of commercial and ornamental plants. If it is permitted to spread into the Midwest and on to the west coast, it will take its place along with the boll weevil and the corn borer as a difficult, destructive and costly pest to control.

The gypsy moth program is likewise designed to contain the insect in its present area of infestation in the New England States and eastern New York. The gypsy moth poses a threat to the West hardwood forests of the country, extending westward to the Mississippi River and into the Ozarks. Treatment of relatively small acreages have kept this pest in check for many years.

In the programs for control of the Japanese beetle and the gypsy moth, as in other pest control programs, the Department of Agriculture has been constantly mindful of the need to protect and preserve wildlife values along with safeguarding agricultural interests. We cooperate to this end with State and Federal wildlife agencies. In cases where those concerned with research on wildlife have been in a position to offer constructive advice concerning the conduct of pest control operations, we have modified our procedures in line with their recommendations.

During the many years in which Federal-State pest control programs have been conducted, numerous cases have occurred, or have been reported, of localized injury to wildlife attributed to pesticides. However, evidence is lacking to indicate that widespread permanent damage to the wildlife resources of this country have resulted from the use of pesticides in connection with Federal-State eradication and control programs.

The Department strongly supports the principle that pesticides should be used intelligently and in a manner to keep adverse side effects to a minimum. In view of opportunities existing for interagency consideration of problems as they arise, the Department has concluded that H.R. 11502 would serve no useful purpose.

Mr. Chairman, that concludes the formal statement.

Mr. DINGELL. Thank you very much, Doctor.

Mr. Van Pelt?

Mr. VAN PELT. I would like to make this statement.

I think it is fine that we are holding hearings on this bill to give the Department an opportunity to refute some of the statements that we heard here yesterday. I would just wonder if you have any specific instances of where the Department has consulted and cooperated with the Fish and Wildlife Service within the last year or two?

Mr. POPHAM. Yes, sir. I would like to just review the cooperation on the fire ant program.

At the outset of the fire ant eradication program, Dr. M. R. Clarkson, Associate Administrator of the Agricultural Research Service, arranged with D. H. Janzen, Director of Bureau of Sport Fisheries

and Wildlife, for a meeting between representatives of the two agencies to discuss problems of mutual interest in connection with the imported fire ant eradication program. That meeting was held in the office of Mr. D. H. Janzen on December 12, 1957.

In attendance from Agriculture were: M. R. Clarkson, W. L. Popham, E. D. Burgess, and D. R. Shepherd.

From the Fish and Wildlife Service: D. H. Janzen, L. A. Parker, John S. Gottschalk, Paul Thompson, Dan Leedy, James B. DeWitt, Albert Tester, and Howard Eccles.

During this meeting the Fish and Wildlife Service was informed that Congress had authorized the Department to cooperate with affected States in a fire ant eradication program and had made an appropriation for that purpose.

The results of research and surveys conducted by the Department during the period 1949 to 1957 were reviewed. The advantages of using a granular formulation rather than a spray or dust were discussed.

The Fish and Wildlife Service was informed that the Agricultural Research Service planned to establish a methods improvement laboratory at Gulfport, Miss., where trained and experienced scientists would devote their full attention to improving methods and seeking alternate approaches to the fire ant problem. The Fish and Wildlife Service was invited to assign a wildlife biologist to the laboratory to work as a part of the research team.

In a letter dated December 23, 1957, Mr. Janzen acknowledged the letter stating that Mr. Walter Rosene stationed at Gadsden, Ala., was being detailed to special studies in connection with the fire ant program and that Mr. Walter Dykstra was to be their liaison with Agriculture at the Washington level. Dr. Clarkson acknowledged the letter on December 20, designating D. R. Shepherd as Agriculture liaison at the Washington level.

Liaison between the two agencies has been active. During the first year of the program meetings at the Washington level were held frequently—at least once a month and more often two or more times a month—and such meetings are continuing. Three meetings have been held in the field, one at Gulfport, Miss., on April 6, 1959; one at Atlanta, Ga., on July 14, 1959; and one at Gulfport, Miss., in December 1959. Washington representatives of both agencies as well as field men from several States attended these meetings.

Field representatives of the Fish and Wildlife Service have been kept informed of areas that are scheduled for treatment and those that had been treated before their field studies began. Upon request the Department has treated designated areas so that special wildlife studies could be made.

The two agencies have discussed in detail adjustments in program procedures that might give additional protection to wildlife in areas under treatment. Information developed at these meetings has been taken into account in planning.

It is the Department's expressed purpose in all cooperative control programs to use the minimum amount of pesticides that will accomplish effective pest control with the least damaging side effects to wildlife or other beneficial insects.

In the spring of 1959 it was agreed between the Agricultural Research Service and the Fish and Wildlife Service that a statement of the cooperative relationship between the two agencies should be formalized to the extent of issuing a joint policy statement on March 20, 1959. Mr. D. R. Shepherd, Agriculture's liaison officer, developed and forwarded to the Fish and Wildlife Service a draft of such a statement. This was officially acknowledged on March 7, 1960.

At that time, the U.S. Fish and Wildlife Service returned the draft with the suggestion that it be broadened to cover pesticide usages for other purposes as well as the imported fire ant program.

Dr. B. T. Shaw, Administrator of ARS, acknowledged receipt of the statement on April 4, and suggested that the agency liaison representatives meet to clear final draft. Such a meeting was held on April 11.

There have been many instances of very close work between the two agencies.

When DDT first became available for civilian use following the war, we had a formal cooperative agreement with the Fish and Wildlife Service to study its effects in connection with the gypsy moth program. That study, as I recall, extended over about a 2- or 3-year period. Very able scientists from both groups were assigned to it.

A final publication came out of it which even to this day stands as an example of the way these studies should be conducted and as a result of that, it has been well accepted countrywide that DDT may be used up to the rate of 1 pound per acre as an oil spray over forested areas without significant detrimental effect on wildlife.

It must, of course, be kept out of water because it is toxic to fish.

I think we can cite other examples in connection with the grasshopper control work.

Here a few years ago, about 8 or 10 years ago, the best approach we had to controlling grasshoppers was the use of bait which was treated bran, ordinary wheat bran treated with a toxicant, and then distributed at a rate of about 8 pounds to the acre.

We were concerned along with the Fish and Wildlife Service as to what birds or animals might be attracted to bran.

It was a good bait for grasshoppers but there was the danger that it might be a bait for something else.

As that study developed, there were some wildlife losses but they were not considered by wildlife biologists as being particularly significant.

Since then, of course, there have been further developments. We now can control grasshoppers with as little as 2 ounces of one of the new chemicals in a gallon formulation applied as a liquid. That is two ounces of the toxicant to an acre. That has pretty much eliminated any concern about wildlife but it has now, as new information has developed, gotten us into trouble from the standpoint of residue on forage that the animal eats, so that that thing has to come under very severe and extensive study again.

Mr. VAN PELT. In planning the spraying, do you ever leave strips along streams where you do not spray so that it would eliminate the possibility of its getting into the water?

Mr. POPHAM. Yes, sir. I might again refer to any one of several programs.

In connection with the fire ant program, the airplane is used only where it can be used with safety. Where streams or fish ponds are involved, we even come all the way down to hand applicators and treat an area around those ponds so as to be sure that none of the chemical gets into the water so that in connection with the fire ant program there are certain areas in which the airplane can be used effectively.

There are other areas where we believe and the Fish and Wildlife people and Health people and others agree that we should use only ground equipment where you can keep a little closer control and not have as much drift.

Then, when we come to the highly sensitive areas, that is done by hand with crews out there who are instructed exactly how to go about treating the area so as to keep the chemical out of sensitive areas.

Mr. VAN PELT. Thank you, Mr. Chairman.

Mr. DINGELL. Mr. Curtin?

Mr. CURTIN. In the event that you should find some new pesticide which was highly effective to control some new pest and you also should find that it was highly destructive of wildlife, what would you do?

Mr. POPHAM. The first thing we would do, Mr. Curtin, would be to discuss that chemical with Wildlife biologists who, of course, are the experts in that field, and with the people in Health, Education, and Welfare who are experts in their field.

I should like, however, to say that these chemicals do not come along overnight. From the time a chemical is discovered to have insecticidal value until it is carried through all of the tests and finally is registered by the Department of Agriculture for interstate commerce requires anywhere from 5 to 8 years of intensive study. Now, that study begins, of course, with determining that it is effective against a bug. That is the first thing, "It would be useful if we can use it."

Once a company has developed such a chemical, has brought in evidence showing that it is useful, then they get their instructions as to what tests they will have to run to determine whether it can be used safely. That safety extends to the man who applies it and to any residue that may remain on the crop.

The first thing is to determine whether it is safe to put out in the hands of anyone with just such instructions as you can put on a label. If it is not, registration is denied. If it is, then the studies begin to determine what residue will be left on a crop or in the soil if the chemical is used in accordance with the directions that the company is recommending.

If there is a residue on the crop at the time of harvest, then they must obtain from the Food and Drug Administration a tolerance for that chemical. Before the Food and Drug Administration will issue a tolerance for any chemical, they must carry it through these toxicological tests with experimental animals over a period of at least 2 years. If they use it in such a way that there is no residue, then there is no way for tolerance but any chemical that is to be sold as a pesticide and, if used according to instructions, will leave a residue on the animal or on the plant for whatever purpose it is used, if it is a raw agricultural commodity, then the responsibility shifts to the Food

and Drug Administration to establish a safe tolerance. We have had this happen. We have had a manufacturer come in with a chemical for registration and, in order for it to be effective against a bug, it had to be used, say, up to within 15 days of harvest, otherwise there was no sense in using it. We, through our own research, know that a residue will be left if he sprays 15 days before harvest. That information is made available to the Food and Drug Administration and he petitions for a tolerance. He may be asking for a tolerance of 5 parts per million.

When you analyze the data, you will find that he cannot use that chemical within 15 days of harvest without leaving 10 parts per million so that the registration is simply denied.

If he stretches it back to 21 days before harvest, it is not effective against the bug he is trying to control.

Mr. CURTIN. Suppose after you have done all that you still find that, in order to control some pest, you still have to sacrifice some wildlife, how would you make the decision?

Mr. POPHAM. We hate to make such decisions. There are instances when you have to weigh that. I think I can get at our position on that pretty well this way. This witchweed which worldwide is reputed to be the very worst pest of corn anywhere in the world we have kept out of this country up until just recently.

In 1956, we found some witchweed in North and South Carolina. That involves an area, say, of about 15 counties down there completely outside of the principal corn and sorghum, sugarcane growing areas of the country. The Federal Government gets into these things only when it is an introduced pest confined to a limited area and you have a chance to protect the rest of the country. That is where the responsibility comes in.

We moved in on witchweed. We had to use a weedkiller. That was the first thing that had to be done. It was on an emergency basis. Each plant would produce about 500,000 seed which again could be scattered. It is a tremendous thing.

We moved in quickly doing the best we could, but we are aware of the effect of the chemicals on wildlife and will take every precaution we can.

Let us assume that there were wildlife losses associated with that program. Is it better to move in and take those losses in that limited area rather than let the witchweed spread throughout the country and then let each farmer deal with it every year, not just one year but every year from here on out?

I think we had better take some losses locally rather than to wait too long to move in on a situation of that kind and try to eradicate it.

Mr. CURTIN. That is all, Mr. Chairman.

Mr. DINGELL. Mr. Hoffman?

Mr. HOFFMAN. Doctor, you said in your statement that you are in agreement with this bill. You are doing everything that the bill calls for now, is that right?

Mr. POPHAM. We feel that the bill is unnecessary.

Mr. HOFFMAN. Then you do not object to the bill. You just feel that it is unnecessary?

Mr. POPHAM. We do not object to the general purpose expressed here. We certainly are for the closest of cooperation and coordination

between agencies having these responsibilities. We hate to find ourselves in a position where there is conflict of interest, but something can develop here.

The Fish and Wildlife people have a responsibility in this field. We in Agriculture have a responsibility in our field. By and large, it seems to me that everything works fine until we come down to this question that Mr. Curtin asked.

There is somewhere along here a determination which has to be made. It might take 5 years to determine the effect of one of these chemicals on certain species of wildlife, or longer. If we wait 5 years we might as well give up on trying to eradicate the pest and it is right there that we need the closest of coordination. Even with legislation, that comes down to working out ways of getting people with the various competences together to deal with these problems.

Mr. HOFFMAN. Thank you, Mr. Chairman.

Mr. DINGELL. Counsel?

Mr. ZINCKE. Doctor, you referred to the cooperation that was obtained or that existed between the Fish and Wildlife Service and your Department in connection with DDT and the fire ant program.

Were those examples of cooperation the usual thing or were they unusual?

Mr. POPHAM. I would say they were usual.

Mr. ZINCKE. Can you recall any situations in which such cooperation did not take place?

Mr. POPHAM. Not at the Washington level.

Now, I think we all experience some of the same difficulties when you get into the field. There may be conflicts of personalities but, by and large, I would say that that statement is true.

Mr. ZINCKE. Then, under the circumstances, if there has been this degree of cooperation, enactment of an obligation to cooperate into law would not prove onerous, would it?

Mr. POPHAM. If it were not a time-consuming thing. Our position is why add additional requirements when this thing, in order to be effective, should be worked out between the agencies involved.

Mr. ZINCKE. Well, there are no time limits specified in the present bill, are there?

Mr. POPHAM. No, sir.

Mr. ZINCKE. With respect to notifying the other agency affected, would your procedure under the bill be any different from that which you now follow?

Mr. POPHAM. We do not believe that Agriculture should be required to report to the Fish and Wildlife Service before undertaking one of these programs. We do feel that there should be the closest of cooperation between the two agencies but we in Agriculture have a responsibility to fulfill in the field of agriculture and that authorization is with the Department of Agriculture. Likewise Fish and Wildlife have a responsibility.

Mr. DINGELL. Counsel, will you yield to me?

Mr. ZINCKE. Yes.

Mr. DINGELL. Will you tell us just how you can cooperate closely without notifying them before you are going to initiate some program?

Mr. POPHAM. I cannot think of any instance.

Mr. DINGELL. I want you to answer by question. Could you tell me how you can cooperate with them without advising them before you initiate some program? I would appreciate an answer.

Mr. POPHAM. We cannot without advising them in effect.

Mr. DINGELL. So that, you have to tell them in advance before you initiate any program?

Mr. POPHAM. Right.

Mr. DINGELL. And, in order to carry out the close cooperation that you are supposed to carry out, you have to advise them in advance, is that correct?

Mr. POPHAM. That is correct.

Mr. DINGELL. And all this bill requires in regard to requiring you to advise them before you commence the program is what you have to do to conduct an intelligent program, is that right, Doctor?

Mr. POPHAM. That is right.

Mr. DINGELL. So that the Department of Agriculture cannot then assert any objection to notifying Fish and Wildlife and State fish and wildlife agencies before you commence a program now, can you?

Mr. POPHAM. We in the Department do not feel that it should be mandatory.

Mr. DINGELL. If you are going to do it anyhow, what is the objection to having it mandatory?

Mr. POPHAM. There could be an instance or instances where the situation warranted moving without first contacting them.

Mr. DINGELL. It takes how long to notify Fish and Wildlife before you commence with this program?

Mr. POPHAM. A telephone call.

Mr. DINGELL. Do you have any objection to making a telephone call to advise them?

Mr. POPHAM. No, sir.

Mr. DINGELL. So that, actually, this objection to notifying Fish and Wildlife is a rather nebulous and ill-founded objection, is it not?

Mr. POPHAM. We feel that legislation is unnecessary.

Mr. DINGELL. We are not talking about whether or not it is necessary. Whether it is necessary is pretty much beside the point.

The real objection that you assert does not have any foundation at all because you are doing this, you say it is the only way to have effective coordination. Tell me, if these facts are so, what is your objection to notifying them before you commence a program?

Mr. POPHAM. It is a common practice for us to notify them before we begin.

Mr. DINGELL. If this is a common practice, how can you object to carrying out a common practice?

Mr. POPHAM. We do not object to carrying out a common practice.

Mr. DINGELL. You object to having the law tell you to do what you ought to do, is that right?

Mr. POPHAM. We feel that the legislation is unnecessary.

Mr. DINGELL. I do not argue that. If the legislation is unnecessary and would only require you to do what you are doing now, how can you object to it?

Mr. POPHAM. On the ground that it is unnecessary.

Mr. DINGELL. That is the only objection?

Mr. POPHAM. That is right, sir.

Mr. DINGELL. Do you have any inference that it would raise costs to Government?

Mr. POPHAM. Assuming that the legislation does not visualize veto power, there would be no added cost.

Mr. DINGELL. There would be no added cost.

Do you see any veto power being vested in the Fish and Wildlife Service?

Mr. POPHAM. The requirement that the Department of Agriculture clear with Fish and Wildlife before undertaking one of these programs would suggest that, if they objected, there could be delay.

Mr. DINGELL. Now, will you tell me where that requirement appears in the bill?

Mr. POPHAM. I do not know as I can exactly. I do not know as it is here exactly. There is another provision here that concerned us somewhat and that is this.

Mr. DINGELL. Doctor, I would appreciate it if you would address your attention first to my question and give me an answer to my specific question. You may then say anything you like but I would like a specific answer to the question.

Mr. POPHAM. I hope I am not confused. Would you repeat it, please?

Mr. DINGELL. Will the reporter please read the question?

(The question was read by the reporter.)

Mr. POPHAM. Before such consultation occurs the Federal officer or agency concerned shall furnish the Fish and Wildlife Service and each such State agency with complete information about the proposed program.

Mr. DINGELL. Do you have any objection to that?

Mr. POPHAM. We object to dealing directly with the State fish and game commission.

Mr. DINGELL. You deal directly with the State agricultural agencies right now and I have not heard any expressed objections to that.

Mr. POPHAM. The State agricultural agencies are our counterpart in the States. All of our working agreements are with agriculture and any dealings that we have with another Cabinet member in the State is through our official contact in the State.

Mr. DINGELL. Does it not appear to be rather novel that you should favor complete cooperation and consultation and then object to talking with the State agencies?

Mr. POPHAM. We, of course, confer frequently with departments of agriculture, with people who have responsibility in the States for agricultural problems.

Mr. DINGELL. Do you ever consult with the State game and fish people?

Mr. POPHAM. At times when the commissioner of agriculture or his representative is with us.

Mr. DINGELL. Do you make it a practice to consult with the State game and fish agencies?

Mr. POPHAM. To the extent that the commissioner of agriculture has contacts, and in most States these seem to be pretty good.

Mr. DINGELL. Do you make it a regular practice to have the State agriculture people consult with the State game and fish people?

Mr. POPHAM. We encourage that; yes, sir.

Mr. DINGELL. As a matter of fact, when you hold meetings on these sprayings with these State agricultural agencies, do you ever clear with the State game and fish agencies before you spray in these areas?

Mr. POPHAM. Our dealings are all with the State departments of agriculture.

Mr. DINGELL. Then, in effect, you are telling me that the complaint which has been made by the International Association of Game, Fish and Conservation Commissioners is a valid one and that the Southeastern Association of Game, Fish and Conservation Commissioners representing agencies in the affected States in their official resolution adopted at Baltimore, Md., on October 27, 1959, were correct when they said:

> Control workers of agriculture have usually failed to consult or cooperate with or to inform State and Federal wildlife agencies which have primary responsibility for the conservation and management of fish and wildlife and have generally disputed the findings and ignored the recommendations of State and Federal wildlife agencies.

They even make a worse indictment of the Department of Agriculture. They go on and say:

> And, further, have disseminated false and misleading information alleging serious destruction of wildlife and livestock by the farmer.

So that, in effect, you have not coordinated with these State agencies in the conduct of your fire ant program and their resolution then is a valid one?

Mr. POPHAM. Our formal cooperation is with agricultural agencies in the State.

Mr. DINGELL. And you have not cooperated with the State game and fish departments on these spray programs at all?

Mr. POPHAM. We have cooperated with the game and fish departments along with the State departments of agriculture. These experiments that were run in Alabama were an example.

Mr. DINGELL. Alabama is 1 of 50 States and you cited one instance in which you cooperated with them in Alabama.

Would you like to tell me about some other instances?

Mr. POPHAM. Yes, I would.

Mr. DINGELL. I want you to know that your testimony sounds rather peculiar due to the fact that you say one thing at one time and turn around then and say something else.

Mr. POPHAM. Other examples of cooperation are some work that has been done in Georgia and some work that has been done in Louisiana.

Of course, these experiments may be conducted in any one of the States and have the information useful throughout the area with the fire ants as a problem.

Mr. DINGELL. This is a very novel thing because the game commissioners of these States are among the signers and among the proponents of the resolution submitted to the committee yesterday, so that it would appear that they still do not think that you cooperated with them very well and we might be down to a position where it would be your word against theirs, Doctor.

Mr. POPHAM. We cooperate with the State agriculture agencies and through them with the State game and fish agency.

Mr. DINGELL. You mean you hope that the State agriculture department will cooperate with the State game and fish department but you have told me that you have no direct communication.

Mr. POPHAM. We encourage them.

Mr. DINGELL. Would you say that the Department of Agriculture is now using heptachlor in the fire ant program at the rate of one quarter of a pound per acre?

Mr. POPHAM. That is the new rate of application.

Mr. DINGELL. Are you using it at the rate of 2 pounds per acre anywhere in the Southeastern States?

Mr. POPHAM. May I add a correction on the quarter pound? It is a split application.

Mr. DINGELL. Two one-quarter pounds over a 90-day period?

Mr. POPHAM. That is right, sir.

Mr. DINGELL. Are you using a 2-pound application in any places?

Mr. POPHAM. Not to my knowledge. The answer is "No."

Mr. DINGELL. Do you have any of the formulation for a 2-pound application on hand?

Mr. POPHAM. We do have.

Mr. DINGELL. I beg your pardon?

Mr. POPHAM. Yes, sir, there is some.

Mr. DINGELL. What will you do with that?

Mr. POPHAM. It will be disposed of as surplus property.

Mr. DINGELL. Can you apply it at the rate of 2 pounds?

Mr. POPHAM. There are other areas where the 2-pound application is used and is recommended. One is, of course, in connection with the white fringed beetle program where nothing less than 2 pounds is effective.

Mr. DINGELL. Two pounds, by the way, is generally quite destructive to wildlife.

Mr. POPHAM. Heptachlor is highly toxic material and we have worked hard to avoid extensive wildlife losses.

Mr. DINGELL. And it leaves a very toxic residue in the soil of heptachlor epoxide, which is worse.

Mr. POPHAM. The heptachlor epoxide has come into the picture very recently and I believe, Mr. Chairman, that you are aware that the Food and Drug Administration has recently withdrawn tolerances for heptachlor because of the epoxide. I checked that with the Food and Drug Administration yesterday to find out if there was anything new in regard to the epoxide. I was advised that they withdrew the tolerance on the basis that all of the toxicological work had been done on heptachlor itself. Then when it was firmly established that heptachlor changed over to the epoxide they found themselves in a position of not having toxicology on the epoxide so that they really had only one course to follow and that was to withdraw the tolerance until such time as additional research would determine whether or not the epoxide is more toxic than the original chemical.

Mr. DINGELL. I have a few more questions but I want counsel to continue.

Mr. ZINCKE. With respect to the provision that in the event that your Department fails to take action recommended by another interested department, the latter shall report to Congress, you, of course, have no objection to that, do you?

Mr. POPHAM. No, sir. We would be glad at any time to appear before this committee or any committee in the Congress to review a situation of that kind.

Mr. ZINCKE. When you stated that in an emergency situation a telephone call would be sufficient to notify an interested agency of your proposed operation, I assume that 50 other telephone calls, one to the appropriate fish and game commissioner of each State, would not be unduly burdensome, would they?

Mr. POPHAM. We would make the telephone call down to the commissioner of agriculture in the State and urge him to communicate with the fish and game commission.

Mr. ZINCKE. Under this bill, you would make the call to the fish and game commissioner, I assume, if I read the bill correctly.

Mr. POPHAM. That is right. That is one objection that we have to it.

Mr. ZINCKE. Do you object to talking to fish and game commissioners?

Mr. POPHAM. It could in some cases create a strained condition assuming that our interests are handled in a State in connection with a program of this kind which is conducted under State authority not Federal.

All of this pest control work is under State authority. If there were strained conditions between the commissioner of agriculture in a State and the fish and game commissioner and we are dealing directly with the fish and game commissioner, we might get in trouble on the other side.

Mr. ZINCKE. You mean because of jealousy at the State level?

Mr. POPHAM. Because of differences of opinion as to particular programs.

Mr. ZINCKE. This bill is limited to cases in which the Federal Government initiates or provides any financial or other assistance for a program. Under the circumstances, have you not sufficient control over your programs so that you notify whom you wish concerning your operations?

Mr. POPHAM. In all of these pest control programs, we work through the commissioner of agriculture because the right of entry on to private property rests with the commissioner of agriculture, not with the Federal Government.

Mr. ZINCKE. The right of entry?

Mr. POPHAM. On to private property?

Mr. ZINCKE. The right of entry on to private property rests with the commissioner of agriculture of a State?

Mr. POPHAM. Rests with the State; yes, sir.

Mr. ZINCKE. With the commissioner of agriculture of the State?

Mr. POPHAM. I am probably wrong in saying the commissioner of agriculture. It is under State authority. I do not know who, which officer of the State.

Mr. ZINCKE. You assume that it is the commissioner of agriculture in every case?

Mr. POPHAM. We deal with the commissioner of agriculture and he in turn deals with any one else that may be necessary in that State to arrange for entry on private property.

Mr. ZINCKE. Is there any inherent objection to dealing with anybody other than the commissioner of agriculture?

Mr. POPHAM. I am sorry, sir.

Mr. ZINCKE. Is there any inherent objection to dealing with anybody other than the commissioner of agriculture in notifying them of the proposed program?

Mr. POPHAM. No, sir; it is a procedure of long standing and I assume that it sort of sets apart the responsibilities in the agricultural field from the responsibilities in the game-fish area or in commerce or pretty much the same as the departments of the Federal Government operate.

Mr. ZINCKE. You notify the newspapers of these programs, do you not?

Mr. POPHAM. There is extensive educational work done at the local level.

Mr. ZINCKE. At your level. You notify the newspapers of a program, do you not?

Mr. POPHAM. The newspapers would be notified that Congress has provided an appropriation of the Federal Government to cooperate with the States on a fire ant program.

Mr. ZINCKE. And prior to the appropriation you would not notify the newspapers or the public in anyway of your plans?

Mr. POPHAM. Not prior to an appropriation; no, sir.

Mr. DINGELL. Subsequently to an appropriation?

Mr. POPHAM. Once the Department is authorized to participate in one of these programs, then that is given general publicity.

Mr. DINGELL. Well, there would be no particular objection to having one of your press releases go to an appropriate fish and game commissioner, would there?

Mr. POPHAM. No, sir.

Mr. DINGELL. That would be consistent with this bill.

You give releases to the Farm Bureau, I assume?

Mr. POPHAM. Yes, sir.

Mr. DINGELL. Why should the Farm Bureau get a press release and the agency concerned not get a release?

Mr. POPHAM. We would have no objection to adding State game commissioners to our mailing list to receive a document of that kind.

Mr. DINGELL. It would appear that you are derelict in not doing that already without being told to do so by this committee.

Mr. POPHAM. We have always dealt with agricultural agencies.

Mr. DINGELL. History is a wonderful thing but, just because you are always dealing with agricultural agencies does not mean that you cannot deal with others.

Mr. POPHAM. We would prefer to deal with them through our formal agreements with the Department of Agriculture.

Mr. DINGELL. There is no real sound reason why you cannot deal with these people at least to advise them what they are supposed to do, is there, except that you do not want to do it?

Mr. POPHAM. I did not say that. We would.

Mr. DINGELL. That is the inference that I get.

Mr. POPHAM. We would like anyone anywhere in the United States who has an interest in wildlife or the wholesomeness of our food to know what programs we are engaged in and how we are going about it and what precautions we are taking to try to meet their interests.

Mr. DINGELL. Except that you want to notify them through the State agricultural agencies.

Mr. POPHAM. That is because our agreements for conducting such programs in States are with the commissioners of agriculture.

Mr. DINGELL. Do you have any objection to the language that was proposed to this committee by the Department of the Interior in their testimony?

Mr. POPHAM. I did not have a chance to really hear it. In fact, I did not hear it too well.

I would like an opportunity to review it.

Mr. DINGELL. We would appreciate your comments on that language, too.

Now, do you have any objection to section 3 of the proposed bill before the committee?

Mr. POPHAM. Section 3?

Mr. DINGELL. Yes.

Mr. POPHAM. I will take it sentence by sentence. We certainly would encourage the United States Fish and Wildlife Service to furnish us with any information that they might have which would indicate the toxicity of these chemicals to any species of wildlife because, very frequently, if it is a particular species that winters in a particular area, we can change our timing on treatment or we can make modifications in the program which will give added protection.

Mr. DINGELL. Do you have any objection to the Fish and Wildlife Service reporting to the Congress of the United States in the event their recommendations are not followed?

Mr. POPHAM. No, sir; if they make specific recommendations to us and for one cause or another we cannot accept them and we go ahead, we would be glad for them to report.

Mr. DINGELL. Actually, section 3 of the bill would be entirely acceptable to the Department?

Mr. POPHAM. The last sentence:

> In the event any Federal officer or agency shall fail to take any action recommended by the U.S. Fish and Wildlife Service, such Service shall make a report thereof without delay to the Congress—

that means if we came down to one of these situations as I interpret it, where we did think it highly important to take immediate action against a pest new to and not widely distributed in this country, even though there were some wildlife losses associated with it, it would be our responsibility to report that to Congress.

Mr. DINGELL. You do not have any objection to the reporting to Congress without delay, do you? Congress should know about these things. There is nothing to prevent the Department of Agriculture from reporting this thing, is there?

Mr. POPHAM. There is nothing to prevent it.

Mr. DINGELL. Then you do not have any objection to this sentence?

Mr. POPHAM. I think it is unnecessary.

Mr. DINGELL. But you do not have any objection to it? It is not being reported now?

Mr. POPHAM. It is just adding another requirement, some more paperwork, it seems to me, to immediately report the fact.

Mr. DINGELL. You do not object to Congress knowing it?

Mr. POPHAM. No, sir.

Mr. DINGELL. Let us get back to section 2 of the bill. The objection is to section 2 by your Department, or what?

If you want to take sentence by sentence, I count two sentences there.

Mr. POPHAM (reading):

> No officer or agency of the Federal Government shall initiate, or provide any financial or other assistance for, any program involving the use of any chemical insecticide, herbicide, fungicide, rodenticide, or other chemical used in biological control until such officer or agency has consulted with the U.S. Fish and Wildlife Service and with the head of the agency exercising administration over the wildlife resources of each State to be affected by the program. Before such consultation occurs, the Federal officer or agency concerned shall furnish the U.S. Fish and Wildlife Service and each such State agency with complete information about the proposed program.

We propose to do that, Mr. Chairman. That is, we propose as in the past to consult with Fish and Wildlife Service when there is some risk to wildlife involved.

Mr. DINGELL. Then you cannot very well object to that sentence, can you?

Mr. POPHAM. Well, it seems to me that it is a rather awkward arrangement both from their point of view and from ours to be required.

Mr. DINGELL. Do you mean to be required to consult? Is it unwholesome to consult with them?

Mr. POPHAM. No, sir.

Mr. DINGELL. In fact, by and large, it is rather beneficial?

Mr. POPHAM. We consult on any of the major problems. There could arise a difference of opinion as to which problem is insignificant.

Mr. DINGELL. All you have to do is consult with them. Consultation does not put you in a straitjacket. It says you consult. You say you consult now.

Mr. POPHAM. We are consulting now.

Mr. DINGELL. You cannot very well object to that sentence, can you?

Mr. POPHAM. No; except that it is unnecessary.

Mr. DINGELL. The next sentence says, "Before such consultation occurs, the Federal officer or agency concerned shall furnish the U.S. Fish and Wildlife Service and each such State agency with complete information about the proposed program." What is wrong with that?

Mr. POPHAM. Well, we would like an interpretation of "complete."

Mr. DINGELL. It means what you propose to do. Is that not your interpretation? You say, "We are going to do so and so. This is the agenda for the consultation." You make a quick memo and say, "We are going to put so many pounds per acre in so many square miles in this county," of that city or in the northeast end of the State or wherever it might happen to be. Is that not a complete summary of what you propose to do?

Mr. POPHAM. We would again want to deal with the departments of agriculture in the States.

Mr. DINGELL. Then your real objection is about dealing with departments of agriculture and you just do not want to deal with State game and fish departments. Is that your objection to the bill?

Mr. POPHAM. No, sir. We have our formal agreements with the departments of agriculture and, out of courtesy to the commissioners of agriculture in each State, when we deal with any other agency in that State we deal through the commissioner.

Mr. DINGELL. Am I incorrect in assuming that these State game and fish commissioners are important, too?

Mr. POPHAM. They are important, yes, sir.

Mr. DINGELL. Is there any reason why the only agency of the State that you can deal with is the State agricultural agency? Is there any reason why that is so?

Mr. POPHAM. We have historically had the agreements with the State departments of agriculture.

Mr. DINGELL. Is there any reason why you cannot check with the fish and game people, too?

Mr. POPHAM. There is no reason why.

Mr. HOFFMAN. Mr. Chairman, will the gentleman yield?

Mr. DINGELL. I will be very happy to yield.

Mr. HOFFMAN. As you know I just came from State government when I came here. I think what the doctor is talking about is a matter of protocol. I think that that could easily be corrected by a small amendment that the Department of Agriculture would notify the Federal Fish and Wildlife Service and they in turn would be compelled to notify each State wildlife and fishery department and that would take care of the whole thing.

Is that right, Doctor?

Mr. POPHAM. It would.

Mr. HOFFMAN. I know that there is a tremendous amount of jealousy in State government between the heads and if the Federal Department of Agriculture would tell the Illinois Department of Conservation, for example, they would say, "Who is this outfit that is coming here and telling us?" If they got it from the Federal Fish and Wildlife Service, there would be no objection.

Mr. DINGELL. You would have no objection to the bill if that were included?

Mr. POPHAM. Well, the Department's position.

Mr. DINGELL. It seems to attach the principal objection that you raised this morning that you do not want to deal with the game and fish departments. I cannot see why, if this amendment were included, you would object to the bill because this would take care of every objection you have raised this morning.

Mr. POPHAM. Except that the legislation is unnecessary.

Mr. DINGELL. You have said that it is unnecessary but I have pointed out some instances where the State game and fish people say that you refuse to talk with them and apparently you do because you have said so this morning. I would like to see them notified even if it is by the fish and wildlife service because, apparently, you people refuse to talk to them.

Mr. POPHAM. We would certainly encourage the Fish and Wildlife people to talk to them.

Mr. DINGELL. You had a telephone call from Mr. Boyer in the Michigan Wildlife Commission yesterday, am I correct?

Mr. POPHAM. I did not.

Mr. DINGELL. Did anyone in your Department have a talk with him?

Mr. POPHAM. Yes.

Mr. DINGELL. Who did?

Mr. SHEPHERD. I did.

Mr. DINGELL. Your conversation was about the testimony of Dr. Wallace here yesterday, am I correct?

Mr. SHEPHERD. The phone call was not for that purpose.

Mr. DINGELL. You did discuss Dr. Wallace's testimony?

Mr. SHEPHERD. We did discuss it because Mr. Boyer asked about it.

Mr. DINGELL. What was your conversation with Mr. Boyer at this particular time?

Mr. SHEPHERD. My conversation with Mr. Boyer was a followup on a phone call that I had with him the day before yesterday.

Mr. DINGELL. About Dr. Wallace's testimony?

Mr. SHEPHERD. No, sir. It had to do with the movement of soil. Mr. Boyer had been called down by a representative of a fertilizer company that are moving soil samples interstate and he called day before yesterday and asked for advice under the quarantine regulations.

Mr. DINGELL. I do not care about that. I want to know about your conversation about Dr. Wallace's testimony here yesterday.

Mr. SHEPHERD. Mr. Boyer merely asked me if Dr. Wallace testified and I said "yes." He asked me about the nature of his testimony, and I told him.

Mr. DINGELL. What did you say about that?

Mr. SHEPHERD. I told him merely what Dr. Wallace said.

Mr. DINGELL. Did you make any comment on his testimony?

Mr. SHEPHERD. I commented to the extent that I thought it was a very restricted study which involved only the University of Michigan campus, that we feel at least in our Division that you should not apply the results of that study over a wide area.

Mr. DINGELL. In other words, your indication was that the testimony of Dr. Wallace was improper yesterday, am I correct?

Mr. SHEPHERD. No, that is not right.

Mr. DINGELL. Did you raise any question about the propriety of Dr. Wallace's testimony yesterday?

Mr. SHEPHERD. No, sir.

Mr. DINGELL. Do you raise any such question about the propriety of it today?

Mr. SHEPHERD. No, sir. I do not.

Mr. DINGELL. I want to tell you that I received a call from a member of the faculty of the Michigan State University and the inference was made that the statement was made by the Department of Agriculture that the testimony of Dr. Wallace yesterday was improper and apparently there is some disciplinary action contemplated as a result of your conversation with Mr. Boyer. Do you think there should be some discipline as a result of his testimony yesterday?

Mr. SHEPHERD. No, sir.

Mr. DINGELL. I wonder if Dr. Popham would think that there should be?

Mr. POPHAM. No, sir.

Mr. DINGELL. There is not any one of you who would say that a member of a State university faculty should not come here to testify, is there?

Mr. POPHAM. That is right.

Mr. DINGELL. So long as I sit on this committee, any witness is going to have a full and proper opportunity to say anything he wishes to say before the committee and if I get any inference that there has been any attempt by the Department of Agriculture to cause any difficulty, personally or professionally, to Dr. Wallace, there will be some hair and hides flying down at the Department of Agriculture.

Mr. POPHAM. Mr. Chairman.

Mr. DINGELL. And also in the Michigan Department of Agriculture, too.

Mr. POPHAM. Mr. Chairman, I do not know anything about this particular telephone call but we hope that any information that has a bearing on this bill or fish and wildlife-agricultural relationships per pesticide-wildlife relationships can be brought out and fully appraised.

Our objective in Agriculture is to do the best job that we can on these pests in such a way as to hold to an absolute minimum the effect that these programs will have on fish and wildlife or on beneficial insects or on the possible contamination of water or food.

Mr. DINGELL. Let me ask the gentleman on your right one more question.

You in no way implied to Mr. Boyer that the testimony of Dr. Wallace was in any way less than completely proper?

Mr. SHEPHERD. No. We are very familiar with Dr. Wallace's work. We have his publications.

Mr. DINGELL. And he had every right to appear before this committee and say whatever he might think was right?

Mr. SHEPHERD. That is right. It is no concern of ours.

Mr. DINGELL. And his statements were moderate and modest and in keeping with the proper appearance before this committee, am I correct?

Mr. SHEPHERD. That is right.

Mr. DINGELL. Are there any other questions?

Mr. VAN PELT. No.

Mr. DINGELL. Gentlemen, I have been rather harsh on you. I hope you will accept my apologies. Nothing personal was intended.

Mr. POPHAM. We appreciate your attitude, Mr. Chairman. Thank you.

Mr. DINGELL. Thank you very much.

Mr. Clapper, in view of the lateness of the hour, I hope you will summarize your statement for us.

(The statement follows:)

STATEMENT PRESENTED BY LOUIS S. CLAPPER, ACTING CONSERVATION DIRECTOR, NATIONAL WILDLIFE FEDERATION, WASHINGTON, D.C.

Mr. Chairman, the National Wildlife Federation is composed of 50 affiliates in 49 States and the District of Columbia. These affiliates are composed of more than 2 million individual sportsmen-conservationists.

We welcome the invitation to appear here today to comment upon H.R. 11502, which would establish the Chemical Pesticides Coordination Act.

In 1959, the National Wildlife Federation adopted a program listing six conservation objectives of major importance. One of these objectives was elimination of Federal appropriations for the large-scale aerial application of chemical insecticides in the fire ant control program, or of any chemical insecticides, herbicides or fungicides where hazards to wildlife resources, beneficial soil organisms, domestic animals or to human health are indicated, until adequate research is completed both on the effects of the chemicals proposed to be used and on alternate and safer methods of treatment.

To date, Mr. Chairman, the Congress has not seen fit to halt the fire ant control program mentioned in the resolution, and we believe the enactment of H.R. 11502 would help induce the proper coordination and cooperation between Federal agencies and between them and the affected State agencies.

This subcommittee, from its fine work earlier on the pesticide research act, is quite well acquainted with problems arising from indiscriminate mass spraying of chemicals. Without going into these details, we might say that it does not appear proper for one unit of the Department of Agriculture to be in the position of exercising the only check upon one of its own programs. The Agricultural Research Service is charged with the responsibility of promoting the fire ant control program as well as checking up on its effectiveness and influence on other organisms. While it is true that the Fish and Wildlife Service and Public Health Service have investigations on certain aspects of pesticide programs, these research efforts still are woefully underfinanced.

In general, the National Wildlife Federation believes any sort of increased cooperation between Federal agencies and between them and State agencies would be beneficial. In fact, if H.R. 11502 could be altered to require concurrence between the agencies, it would be immeasurably strengthened. Actually, there should be no objection if Federal and State health agencies also were brought into such a coordinating arrangement.

Otherwise, to comment briefly on the bill, the title might be improved by elimination of the word, "biological" or to substitute for it the word, "pest." Biological controls to many people means use of more desirable living organisms to prey upon, or check, less desirable living organisms. The same comment can be applied to use of the term in section 3.

Unless additional funds are authorized and appropriated for detailed research, it should be made clear the H.R. 11502 would apply primarily to broad aspects of pesticide programs. To require that the U.S. Fish and Wildlife Service make detailed studies upon effects of each chemical to be applied to each localized area in a widespread control program is beyond the scope of current funds. It is doubted if many detailed studies would be required through this act but, if such research became necessary, Congress can be relied upon to grant adequate moneys.

Mr. CLAPPER. Authority of the Secretary of the Interior to except certain programs, as outlined in section 4, may be too broad. The process of consultation outlined in other sections of the act would appear to offer the Secretary of the Interior an easy opportunity to grant approval for any program which might not present a threat to wildlife resources.

In consideration of these comments, Mr. Chairman, we urge favorable action on H.R. 11502.

Thank you for the opportunity of appearing here today.

(The following was furnished for insertion:)

[From Sports Illustrated, May 2, 1960]

THE DEADLY SPRAY

In the war against his insect enemies, man has reached the point where his poisons not only kill birds and animals but threaten the human population as well.

(By John O'Reilly)

In the last 3 years the U.S. Department of Agriculture, warring against the fire ant, has sprayed more than 1,750,000 acres in the Southeast with chemical pesticides far more poisonous than DDT.

In the last few weeks the U.S. Fish and Wildlife Service has reported finding 59 species of animals, including game birds, dead on the ground in sprayed areas. These animals all contained residues of dieldrin or heptachlor, the two chemicals used.

In the same period the Food and Drug Administration declared a zero tolerance for heptachlor in foodstuffs for human consumption.

Thus man's chemical warfare against his insect enemies has at last reached the point where it threatens the well-being of man himself. The multi-million-dollar campaign waged by the Department of Agriculture against the imported fire ant has brought the whole question of the mass use of pesticides into violent focus. Yet the spray program for fire ant control is only one of several in which scientific investigators have found alarming results. Here are some of the others:

Heavy losses of game and nongame fish were discovered 4 months after DDT was sprayed on a large tract of forest in the watershed of Montana's Yellowstone River. On less than 300 yards of stream 600 dead or dying whitefish, brown trout, and suckers were counted, and Prof. Richard J. Graham found fish dying 90 miles below the treated watershed. The fish were found to contain DDT.

On the east coast of Florida 2,000 acres of tidal marsh, traversed by 354,000 linear feet of ditches, were sprayed by airplane with dieldrin to control sand flies. The fish kill was nearly complete, estimates running to between 20 and 30 tons, or about 1,750,000 fish, representing some 30 species.

Robins and other highly desirable birds were wiped out in a number of communities in the Midwest, where spraying with DDT has been conducted for control of the Dutch elm disease. On the campus of Michigan State University Dr. George J. Wallace found original nesting robins were killed and others moving in to replace them also fell prey to the poison.

Damage to birds and mammals was reported by T. G. Scott, Y. L. Willis, and J. A. Ellis from applications of dieldrin for control of Japanese beetles in Illinois.

Research conducted by the U.S. Fish and Wildlife Service has shown that as little as one two-hundred-thousandths of an ounce of dieldrin per day in the food of pheasants resulted in eggs of low hatchability and chicks subject to abnormally high death rates.

Some streams already have been polluted with pesticides, and DDT has been found at the mouths of even the largest rivers, including the Mississippi and the Columbia.

All the foregoing were the results of a program which, according to the pesticide committee of the International Association of Fish, Game & Conservation Commissioners, in 1958 accomplished the following: "Chemical controls were applied to more than 100 million acres of land in the United States, with additional millions more in Canada and Mexico. Mixed with dusts, oils, water, and other solvents, emulsifiers and carriers, the volume totaled between 2 and 3 billion pounds and cost the consumer over $500 million. Currently, one-sixth to one-fifth of our croplands and millions of acres of forest and rangelands are treated annually with pesticides in quantities of a few ounces to 25 or more pounds per acre." As for the future, the report added: "Entomologists expect a fourfold increase in the use of insecticides during the next 10 or 15 years."

On March 28 Justice William O. Douglas in effect proposed that the entire problem of mass spraying of toxic chemicals be reviewed by the Supreme Court of the United States. He stressed the importance of the issue in an indignant protest when the Supreme Court refused to consider the legality of a Department of Agriculture program to spray DDT from airplanes on more than 3 million acres of land in 10 States.

Justice Douglas' action climaxed a 4-year battle by 13 residents of Long Island, N.Y., including Dr. Robert Cushman Murphy, the ornithologist, and Archibald B. Roosevelt, son of President Theodore Roosevelt, to curb pesticide spraying in their area. They had sought an injunction in 1956 against the Department of Agriculture's spraying of DDT to eradicate the gypsy moth, on the grounds that it would poison vegetables, animals, and human beings. While the case was moving through the courts the Department moved through the air and the spraying was done. The Government then said it had no intention of repeating the spraying. The Second Circuit Court of Appeals held, therefore, that the question was moot, or a dead issue, and the Supreme Court refused to review this decision.

"A THREAT TO HUMAN HEALTH"

After discussing some of the testimony in the case, Justice Douglas wrote: "The public interest in this controversy is not confined to a community in New York. Respondents' spraying program is aimed at millions of acres of land throughout the eastern United States. Moreover, the use of DDT in residential areas and on dairy farms is thought by many to present a serious threat to human health, as evidenced by the record in this case as well as by alarms sounded by others on the problem. The need for adequate findings on the effect of DDT is of vital concern not only to wildlife conservationists and owners of domestic animals but to all who drink milk or eat food from sprayed gardens. * * *

"I express no views on the merits of this particular controversy. Nor do I now take a position on the issue of mootness. But I do believe that the questions tendered are extremely significant and justify review by this Court."

It is not only the scope of the spraying program but the changing nature of the compounds used that has led to such mounting concern. Since World War II, when DDT was put on the market, the deadliness of pesticides has increased markedly. Insects were found to develop immunity to DDT, and so the demand arose for stronger compounds with a wider killing effect. A long list of new organic pesticides was therefore developed, including the chlorinated hydrocarbons. Now more than 200 pesticides are sold in various formulas under thousands of trade names.

Dr. Clarence Cottam, director of the Welder Wildlife Foundation, Sinton, Tex. (SI, Jan. 21, 1957), and former Assistant Director of the U.S. Fish and Wildlife Service, is one of the leaders in the campaign against the wholesale and indiscriminate spraying of these toxic materials.

"The magnitude of this problem is tremendous," Dr. Cottam says: "It suggests to me that ultimately legislative action by Congress may be necessary to give more effective protection to man and his resources against overzealous operators. Knowledge needs to be available concerning the probable or possible indirect, as well as the direct, effect of the projected operational program."

The new chlorinated hydrocarbons have many curious properties. As a group they are highly toxic, but some are more poisonous than others and their effects are different upon different organisms. Upon being ingested some of them change form. In the body tissues of animals, for example, heptachlor metabolizes to heptachlor epoxide, which has proved to be more poisonous than the original compound. These chlorinated pesticides are also surprisingly stable and remain in the environment long after they have been deposited. Dieldrin and heptachlor remain lethal to invading fire ants from 3 to 5 years and possibly longer.

In the case of the imported fire ant program, appropriations for eradication were voted by Congress, and it then became the obligation of the Department of Agriculture to carry out the program through its Pest Control Division. Officials administering the program have held that if they were permitted to carry on an all-out campaign the ant could be eliminated and any areas suffering damage to wildlife would be repopulated naturally. It is a matter of historic irony, however, that the entire furor over the fire ant has been concerned with an insect which, on further investigation, has turned out to be something less of a menace than it was originally made out to be.

Not so the poisons. One of the warnings sent out to local residents in advance of the spraying, for instance, says: "Cover gardens and wash vegetables before eating them; cover small fishponds; take fish out of pools and wash pools before replacing the fish; don't put laundry out; keep milk cows off treated pastures for 30 days, and beef cattle 15 days; cover beehives or move them away; keep children off ground for a few days; don't let pets or poultry drink from puddles."

Gradually the imported fire ant seemed to lose some of its viciousness. There were denials that it ate crops. Health officials said it was not a menace to human beings. Dr. Kirby Hays, an entomologist, who was sent to Argentina by the State of Alabama to study the ant on its home grounds, reported that the people of Argentina considered the insect beneficial because it attacked a number of destructive insects. Last week the National Wildlife Federation asked Congress outright to stop or drastically modify the fire-ant control programs, pointing out that "the fire ant is a nuisance, but nothing more." The value of its control, said Louis C. Clapper, acting conservation director, "is more than offset by long-term damage to wildlife, fish, domestic livestock and poultry and beneficial soil organisms." The Department itself cut down the recom-

mended dosage of 2 pounds per acre to a quarter pound per acre, with a second spraying of the same amount 3 to 6 months later.

Meanwhile, biologists were following the trail of the sprayer. At the 25th North American Wildlife and Natural Resources Conference held last month in Dallas, Dr. James B. DeWitt, of the U.S. Fish and Wildlife Service, delineated the results of research he and his coworkers had conducted at the Patuxent Wildlife Research Center near Laurel, Md.

It was Dr. DeWitt who listed the 59 species of poisoned animals that had been obtained from areas sprayed for fire ants. The list included songbirds, quail, rails, ducks, rats, mice, raccoons, foxes, snakes, frogs, and fish. Dr. DeWitt also reported that earthworms, an important food of some birds, taken as much as 12 months after treatment of an area with the pesticide, contained from 1 to 10 parts per million of heptachlor epoxide.

The cost of the fire-ant program has been great. During 3 years Congress has appropriated $7,200,000 for the spraying. With additional funds appropriated by State legislatures, the total cost has risen to between $10 and $12 million. Meanwhile, both the spraying and the controversy continue, although some States have reduced or withdrawn financial support of the program.

Most of those who are in violent opposition to such massive spray programs agree that pesticides have become an unavoidable part of the economy. However, they do make strong pleas for a revised approach to the problem. Instead of stronger poisons with wide killing ranges they urge less toxic but more specific chemicals and the use of spot methods of application rather than the wholesale dosing of big areas from airplanes. Above all, they plead for greater cooperation between biologists and those exercising control programs.

A bill to that effect, called the Chemical Pesticides Coordination Act, was introduced in Congress on March 31 by Representative Leonard G. Wolf, of Iowa. This bill would require advance study of the effects upon fish and wildlife before any Federal program using chemical pesticides could be undertaken. It would require not only preliminary study by the U.S. Fish and Wildlife Service but also by the game and fish department of the State affected. The Fish and Wildlife Service would be directed to cooperate in developing methods that would achieve the necessary controls while minimizing damages to wildlife resources.

A VIEW OF BLACKEST PESSIMISM

Many of those taking an active part in the controversy feel that this is a good step, but that a much broader appraisal of the mass use of chemical poisons is needed. Dr. Wallace, of Michigan State, viewing the drastic toll of robins and other birds after his investigations, expressed a view of blackest pessimism and indictment: "The current widespread and ever-expanding pesticide program poses the greatest threat that animal life in North America has ever faced—worse than deforestation, worse than market hunting and illegal shooting, worse than drainage, drought, or oil pollution and possibly worse than all of these decimating factors combined." Dr. Cottam, more temperate but no less positive, argued for "selective and specific pesticides which we can use to control pests without significant detrimental effects to other public values or to other members of the biota which are of high economic, social or recreational importance. It has been done before." Dr. Cottam concluded, "The possibilities are there, and the promised rewards are worthy of our best efforts."

STATEMENT OF LOUIS S. CLAPPER, ACTING CONSERVATION DIRECTOR, NATIONAL WILDLIFE FEDERATION

Mr. CLAPPER. May I just read extracts? And then I would like a personal comment, sir.

We believe that the enactment of H.R. 11502 would help induce the proper coordination and cooperation between Federal agencies and between them and the affected State agencies.

In general, the National Wildlife Federation believes any sort of increased cooperation between Federal agencies and between them and State agencies would be beneficial. In fact, if H.R. 11502 could be altered to require concurrence between the agencies, it would be im-

measurably strengthened. Actually, there should be no objection if Federal and State health agencies also were brought into such a coordinating arrangement.

To comment briefly on the bill, the title might be improved by elimination of the word "biological" or to substitute for it the word "pest." Biological controls to many people means use of more desirable living organisms to prey upon, or check, less desirable living organisms. The same comment might be applied to use of the term in section 3.

Unless additional funds are authorized and appropriated for detailed research, it should be made clear that H.R. 11502 would apply primarily to broad aspects of pesticide programs. To require that the U.S. Fish and Wildlife Service make detailed studies upon effects of each chemical to be applied to each localized area in a widespread control program is beyond the scope of current funds. It is doubted if many detailed studies would be required through this act but, if such research became necessary, Congress can be relied upon to grant adequate moneys.

Authority of the Secretary of the Interior to except certain programs, as outlined in section 4, may be too broad. The process of consultation outlined in other sections of the act would appear to offer the Secretary of the Interior an easy opportunity to grant approval for any program which might not present a threat to wildlife resources.

In consideration of these comments, Mr. Chairman, we urge favorable action on H.R. 11502.

I would like to comment very briefly upon a personal experience, Mr. Congressman.

I attended a public hearing in Georgia last October and there was a point or two brought out there that I think may be pertinent to the discussion which has gone on previous to this.

Several witnesses have commented upon the fact that adequate research has not yet been completed upon the various aspects of some of these programs and, with relation to the fire ant control program, I would like to introduce a letter that a veterinarian in Georgia wrote to the president of our Georgia affiliate indicating that there were losses in the initial program there of cattle and other livestock which, to us, would indicate that, if these chemicals are powerful enough to kill livestock, that they certainly are creating some damage to fish and wildlife.

Mr. DINGELL. Would you like to have that included in the record?

Mr. CLAPPER. If you would, sir.

Mr. DINGELL. Without objection, so ordered.

(The document follows:)

POITEVINT ANIMAL CLINIC,
Bainbridge, Ga., October 13, 1959.

Mr. RAY E. TYNER,
Georgia Sportmen's Federation,
Cordele, Ga.

DEAR RAY: I appreciate the invitation to attend your meeting but it now appears that I will be unable to, due to unavoidable circumstances.

I would like for your people to know some of the facts concerning the fire ant eradication program in Decatur County and its obvious effects on livestock and poultry.

The aerial application of heptachlor and/or dieldrin was begun in November 1957 and continued into early summer 1958.

Livestock losses of an alarming nature began to occur in February and March 1958. I would like to list some of the facts concerning these losses.

1. A condition affecting the nervous system of domestic animals and poultry was seen at periods of 2 weeks to several months following the aerial application of fire ant poison. This condition was in most cases fatal.

2. The condition was seen to affect several different species such as cattle, goats, horses, and chickens, as well as wild animals and birds.

3. The condition was seen only in species which had access to contaminated food or water or both. Stabled animals were not affected.

4. The condition was seen only in those areas of the county which had previously been treated for fire ants.

5. The symptoms observed by myself and reported by others were the same as those described in authoritative textbooks for poisoning by dieldrin and heptachlor.

6. Veterinarians in the employ of the U.S. Department of Agriculture suggested rabies and listeriosis as possible causes of the condition. Laboratory tests for these and other known diseases were negative.

7. It has been reported that dieldrin and heptachlor disappear within 1 months, usually 2 weeks after application. They say, therefore, that poisoning could not occur later than 1 month after application.

An interesting case history is as follows. On April 15, 1958, a 2-month-old calf was picked up by agents of the State and Federal Governments. The animal showed symptoms not unlike those described for poisoning by heptachlor. The animal was carried to Tifton and was subjected to exhaustive laboratory tests with negative results. Fat from this animal was analyzed by Federal chemists and found to contain 79 parts per million of heptachlor. This occurred approximately 5 months after application of heptachlor. Did the calf get this from grazing or from milk? If from the milk, why were not special precautions taken to protect our children who drank milk from local daries? By the way, this calf was never paid for.

Losses of cattle exceeded 100 and numbers of other animals died. Abortions in swine and sterility may have been due to insecticide also.

During the past year I have not observed any losses I felt were due to insecticide.

I have never seen or heard of any losses due to fire ants in the county except as a nuisance.

Yours truly,

OTTIS L. POITEVINT, D.V.M.

WHO WILL SAFEGUARD WILDLIFE?

The following instructions are given to Alabama landowners whose lands are to be treated with heptachlor or dieldrin in the fire ant eradication program:

Leafy vegetables in your garden, such as lettuce, cabbage, turnips, etc., should be covered prior to application of insecticide and then washed before eating.

Small fishponds in your yards should be covered with a plastic sheet or canvas tarpaulin during application. Fish should be taken from pools prior to application and pools should be cleaned before putting fish back into them.

Laundry should not be put out on lines the day applications are made in your neighborhood.

Cattlemen and dairymen should keep their cattle off treated pastures for the following periods of time: Milk cows, 30 days; beef cattle, 15 days.

Beehives should either be covered or moved from the area prior to treatment.

Small children who play on the ground should be kept out of yards for a few days after treatment.

Household pets must not drink from water puddles that may form after first rain.

Additional information.—School grounds will be treated on weekends or holidays when school is not in session. Water puddles after first rain are dangerous and pets, chickens, etc., should not be allowed to drink water from them. We will attempt to contact every person living in the areas to be treated prior to the time materials are applied.

Prepared by the U.S. Department of Agriculture and the Alabama Department of Agriculture and Industries

It is commendable that the officials responsible for the fire ant control program are concerned with human life, farm animals, poultry, and bees, but who will assume the same responsibility for fish, wildlife, songbirds, beneficial insects, and other life forms of great importance to the chain of nature? How can any official feel the concern apparent in the warnings stated above and still make or sanction official statements from his organization that the same effects will not be felt by wildlife?

Wildlife technicians of the Alabama Department of Conservation and other agencies are convinced that the numerous dead found a few days after application of heptachlor and dieldrin died from these insecticides or the epoxides formed by them within the animal bodies.

Federal and State agriculture agencies in Alabama have stated, "The program will be pursued until the ants have been eliminated, without regard to landownership or use."

However, all friends of wildlife should just as emphatically state that further blanket applications of insecticides on wide land areas will be stopped until a comprehensive research program on a national scale can offer guidance so obviously lacking.

GEORGE M. KYLE,
Alabama Department of Conservation.

Mr. CLAPPER. While there the State USDA supervisor for the State of Georgia admitted that there was little farmer participation in this so-called three-way program. The original plan was for the Federal Government, the State government, and the individual farmer to contribute thirds as to the cost of this program. He admitted there that there was very little farmer cooperation in this program.

Since the State of Alabama has refused to appropriate funds for this program in its State legislature, it would seem that this is becoming rapidly an entirely Federal program.

I wanted to bring that out because of the fact that in Dr. Wallace's testimony earlier, it was pointed out that program to which he referred was primarily a local program.

I would also like to comment very briefly on the Reader's Digest article written by Mr. Strother some time ago in which he pointed out that Dr. F. S. Arant, of the Alabama Polytechnic Institute, told him that:

Damage to crops by the imported fire ant in Alabama is practically nil. This department has not received a single report of such damage in the past 5 years. No damage to livestock has been observed. The ant eats other insects, including the cotton boll weevil. It is a major nuisance, but no more.

I would like permission to introduce that.

Mr. DINGELL. Without objection, so ordered.

(The article follows:)

[Reprinted from the June 1959 issue of the Reader's Digest]

BACKFIRE IN THE WAR AGAINST INSECTS

There is mounting evidence that massive aerial spraying of pesticides may do more harm than good. Until the full results are known, all concerned should heed the warning: "Proceed with caution!"

(By Robert S. Strother)

The United States is engaged in an intensive war against destructive insects. The weapons employed are powerful and widespread, and so is the controversy they have engendered. Billions of pounds of poisons were broadcast over 100 million acres of cropland and forest. More billions of pounds are being spread

across the Nation this year—against spruce budworm in northern forests, grasshoppers in 9 million acres of wheatland in the Midwest, white-fringed beetle in the Southeast; against sand flies, gnats, Japanese beetles, corn borers, and gypsy moths. The U.S. Department of Agriculture is only one of the large-scale users of insecticides. State, county, and even local groups also employ them, sometimes in cooperation with USDA, sometimes alone.

The new insecticides, often used as massive sprays from planes, kill birds, fish, and animals along with insects of all kinds, good as well as bad. The costs of the campaigns in money, destruction of wildlife, and possible harm to human health are not adequately known. The need for them is hotly challenged and hotly defended.

Says Dr. George J. Wallace, Michigan State University zoologist, "The current widespread program poses the greatest threat that animal life in North America has ever faced—worse than deforestation, worse than illegal shooting, worse than drainage, drought, oil pollution; possibly worse than all these decimating factors combined."

The USDA points to the eradication of the Mediterranean fruitfly in Florida as an example of what spray programs can accomplish. It also cites thousands of letters from grateful farmers all over the country. "Benefits to agriculture and the public," says USDA, "far outweigh damages that have occurred. Claims of wildlife destruction are greatly overstated."

Nobody knows for certain just how much damage is done, but there have been indications. In Florida, when a 2,000-acre tidal marsh was treated with dieldrin for sandfly larvae, a biologist was on hand. His report: "The fish kill was substantially complete. The immediate overall kill was 20 to 30 tons of fish, or about 1,175,000 fish, of at least 30 species. The larger game and food fish succumbed most rapidly. Then crabs devoured them; next day the crabs themselves were dead."

Large numbers of dead and dying birds—mostly robins—were found on the campus of Michigan State University in the spring of 1955. Indications were that death was due to insecticide poisoning, and subsequent investigation disclosed the chain of events. In the previous year, campus elms had been sprayed against bark beetles, carriers of the fungus which causes Dutch-elm disease. Earthworms eating the leaf litter accumulated DDT in their viscera. When spring came and the worms emerged from the thawed ground, the robins ate the worms and died.

The annual elm spraying was continued. Its effect on reproduction among surviving robins was startling. In the spring of 1957 zoologists searched the 185-acre north campus for nests. Only six were found. Of these, five produced no young and the fate of the sixth was undetermined. Late in June a 3-day search for young robins found only one—all this in an area that in 1954 had produced, on the basis of sampling counts, at least 370 young robins.

The first public outcry against massive spraying arose in 1957 during the USDA campaign against the gypsy moth in southern New York. Planes flew over at low levels, discharging a fog of DDT-impregnated kerosene on 3 million acres, including densely populated communities in Westchester County and on Long Island. Commuters awaiting their trains were sprayed, as were dairy farms, ponds, vegetable gardens and children, some of them three times.

Tempers flared, and 14 citizens charging careless use and official arrogance went into Federal court demanding an injunction against aerial spraying. After an extended hearing their application was denied.

Another and louder outcry was in the making. According to reports, 27 million acres in nine Southern States from eastern Texas to South Carolina were "teeming" with South American fire ants. These quarter-inch-long ants, it was said, had captured much of the South's best farmland and were eating their way north and west, sucking plant juices, killing young wildlife and swarming in vicious assault on men in the fields. Their onslaught, if unchecked, might not stop short of California and Canada.

To combat the menace Congress voted an emergency appropriation of $2,400,000 for USDA. Plant-pest control crews, without prior field testing, started an aerial broadcast of heptachlor, a powerful chlorinated hydrocarbon of th DDT family. They treated 700,000 acres before the appropriation ran out. The USDA now has asked Congress for another $2,400,000 for the second step in a long-range poisoning program. Does the fire-ant threat justify this costly campaign?

WHAT ONE BIRD CAN DO

A house wren feeds 500 spiders and caterpillars to its young during 1 summer afternoon.

A swallow devours 1,000 leafhoppers in 12 hours.

A pair of flickers consider 5,000 ants a mere snack.

A Baltimore oriole consumes 17 hairy caterpillars a minute.

A brown thrasher can eat 6,180 insects in one day.—Garden Club of America Conservation Committee.

To get a firsthand view I went to Alabama, where fire ants have flourished for 40 years, and talked with people for, against, and in the middle of the program. Some remarkable facts emerged.

The foremost is this: the fire ant is not a serious crop pest; it may not be a crop pest at all. Dr. F. S. Arant, chief of the Zoology-Entomology Department at Alabama Polytechnic Institute, told me, "Damage to crops by the imported fire ant in Alabama is practically nil. This department has not received a single report of such damage in the past 5 years. No damage to livestock has been observed. The ant eats other insects, including the cotton boll weevil. It is a major nuisance, but no more."

Though USDA Circular No. 350 asserted that the imported fire ants often attack newborn calves and pigs, are fond of quail, and chase brooding hens off their nests to eat their chicks, researchers at Alabama Polytechnic could rarely induce fire ants, even starving ones, either to eat plants or attack young animals. Instead, the insects became cannibalistic and ate one another.

Farmers and cattlemen detest the fire ants because their ugly 2-foot-high mounds clog mowing machines, and the ants bite when the farmer gets down to clear the blades. But none of the farmers I talked with had suffered any crop damage from fire ants. To control them, all farmers have to do is pour insecticides into the individual mounds or disk insecticides into the soil along with fertilizers—two successful, low-cost methods developed by the agricultural experiment stations of Alabama and Mississippi.

Last September, 52 experts, including a USDA contingent of 5, were present at a fire ant research meeting in Auburn, Ala. Dr. L. D. Newson of Louisiana State University challenged anyone there to go on record as saying that the fire ant eradication program could be justified by damages to crops or animals. There was no answer.

What was the effect of the 1957–58 fire ant campaign on wildlife? Dan Lay, Texas wildlife biologist, reported from Hardin County: "On May 12, before the poisoning, the fields were noisy with birds singing for territorial establishment. Dickcissels, redwinged blackbirds, and meadowlarks were building nests and laying eggs. Forty-one nests with eggs were found in one clover field."

Then the planes came, scattering tiny pellets of clay containing 10 percent heptachlor. The poison covered the ground, 7 to 12 sugar-size granules to the square inch. The birds ate poisoned insects, pulled worms through poisoned soil, or absorbed the poison through their feet. Within a day they began to tremble, went into convulsions and died. Orphan broods hatched and died in their nests. By June 3 only 3 of the 41 nests in the clover field remained occupied. Birds along the roads were reduced 95 percent.

It was the same in other areas sprayed: Quail and killdeer wiped out; doves, woodpeckers, snipe, mockingbirds, cardinals, woodcock, hawks, wild turkeys, shrikes, and many other species almost exterminated.

Animals died, too. A raccoon which had been seen rolling frenziedly in the road was later found dead by the roadside. Four fox pups were found dead in their den, poisoned by food brought in by their mother. Fish, turtles, snakes, rabbits, opossums, squirrels, armadillos were killed.

Today fish and game commissions in most of the afflicted States, finding the cure worse than the disease, have demanded a halt to aerial spraying. "It's like scalping yourself to cure dandruff," said Clarence Cottam, former official in the Fish and Wildlife Service.

"Sickening," said Charles Kelley of the Alabama Conservation Department. "These people can kill more game in a month than our department can build up in 20 years." Kelley handed me one of the USDA warnings given people whose lands are about to be doused:

"Cover gardens and wash vegetables before eating them; cover small fishponds; take fish out of pools and wash pools before replacing the fish; don't put laundry out; keep milk cows off treated pastures for 30 days, and beef cattle 15

days; cover beehives or move them away; keep children off ground for a few days; don't let pets or poultry drink from puddles."

"How can any official read that and still say the losses of wildlife are insignificant?" he demanded.

Last year, under the prodding of Representative Lee Metcalf of Montana, whose interest grew out of the wholesale destruction of fish in the Yellowstone River following a mishap in spraying DDT, Congress conducted hearings on the pesticide problem and set aside $125,000 for studies to learn what we are doing to fish and wildlife. All witnesses agreed basic research was badily needed. They raised many unanswered questions.

Do repeated small doses of the poisons impair the reproductive ability and lower the survival rate of the young in animals and birds? Most of the new chemicals retain their killing power in the soil for 3 years at least. Can they still kill after 5 years? Ten? Nobody knows.

What of the micro-organisms that create soil fertility in the first place? What of the bottom organisms in streams and bays, on which marine life feeds? Do they accumulate the poisons? Since pesticides kill mice-eating hawks, owls, and foxes as well as rodents, and beneficial as well as harmful insects, may we not find ourselves without natural allies in the war on pests, and become wholly dependent on ever stronger chemicals?

What about insects' developing immunity, just as some germs have become immune to penicillin? The housefly and the mosquito were the initial targets for the new sprays. Now, some common species of these insects are 1,800 times more resistant to DDT than were their ancestors of a few years ago. Are we trading a costly temporary victory over other pests for disaster in the form of superinsects later on? Nobody knows.

And finally there is the greatest question of all: How serious are the hazards to human health? Doctors are increasingly troubled by the possibility that DDT and its much more poisonous descendants may be responsible for the rise in leukemia, hepatitis, Hodgkin's disease, and other degenerative diseases.

It may take years to find the answers to some of these questions. But one thing seems plain enough: aerial spraying needlessly kills wildlife and should not be done except in small areas and real emergencies.

Our forests flourished without chemical help through eons of time, and man has practiced agriculture with reasonable success for 100 centuries of recorded history. The new pesticides have been in general use for 15 years. "Surely," says Dr. Fairfield Osborn, noted conservationist, "we would be wise to halt massive spraying until we know what effects the toxins are having on ourselves and our animal coheirs to this planet."

Dr. Wallace has made a grim prophecy: "If this and other pest eradication programs are carried out as now projected, we shall have been witnesses, within a single decade, to a greater extermination of animal life than in all the previous years of man's history on earth."

This may be a wildly pessimistic view. Nobody knows. But why risk it?

Mr. CLAPPER. The last Department of Agriculture witness talked about the cooperation and the field man from the Fish and Wildlife Service who was added to the team. I do not believe that the Fish and Wildlife witness commented about the study that Mr. Rosene made. I think he found that 87 percent of the quail in the area concerned with this test were found to be killed. I think the Fish and Wildlife Service could perhaps offer more detailed information on that but I did want to point out that apparently his recommendations were not given too much attention in this program.

Thank you, sir.

Mr. DINGELL. Thank you very much.

Is Mr. Spencer Smith present?

Mr. POOLE. Mr. Smith told me that he would be unable to be here and asked that I request the permission of the committee to file a statement in the next few days.

Mr. DINGELL. Is there anyone else who desires to be heard on this matter?

Would you give your name to the reporter, please?

STATEMENT OF DANIEL A. POOLE, EDITOR, OUTDOOR NEWS BULLETIN, WILDLIFE MANAGEMENT INSTITUTE

Mr. POOLE. My name is Daniel A. Poole, and I am the editor of the Outdoor News Bulletin of the Wildlife Management Institute.

With your permission, Mr. Chairman, I would like to read two or three paragraphs of the statement in the interest of time.

The institute endorses the objectives of H.R. 11502, but it is doubted that enactment of the proposal will stimulate the practical degree of coordination that is needed between the pesticidal control and wildlife agencies. A formal statement by Congress of its desires to achieve coordination between the affected agencies and groups will be helpful, but it is believed that generalized directives for coordination are less preferable than a specific plan to achieve the needed coordination.

National concern about the complex question of insect control, human health, and wildlife relationships has spread widely. There are urgent demands that immediate, positive action be taken to correct the undesirable situation that has developed in the past few years.

It is believed that H.R. 11502 can be improved and made more positive. Suggested changes that would accomplish this include that (1) the appropriations requests of the plant and pest control agency be accompanied by a full description of the proposed pesticidal program and the interagency recommendations of the dosages, formulations, and methods and times of applications jointly suggested by the coordinating agencies. This would be somewhat similar procedure as developed in the Fish and Wildlife Coordination Act reported by this committee last year.

(2) The Public Health Service, as well as the Departments of Agriculture and Interior, be instructed to take part in the planning of pesticidal programs or review of them, and (3) that competent representatives of all three agencies as well as State personnel, be stationed in the field during control operations to conduct necessary surveys and investigations.

Experience with such control operations as gypsy moth in New York State, imported fire ant in the Southeast, and this summer's spruce budworm campaign in Maine shows that there is sufficient time lag between program planning and initiation of field activities in most of the major programs to enable the affected agencies to participate in the review and planning of the proposed control activities.

Their joint report could accompany the budget request. This would give the Congress an opportunity to review the proposed programs and would largely prevent the recurrence of misunderstanding that has arisen as a result of some of the pest control activities that presently are planned and carried out by a single agency which represents only one of the many interests that may be involved.

That concludes my statement.

(The statement follows:)

STATEMENT OF DANIEL A. POOLE ON H.R. 11502

Mr. Chairman, I am Daniel A. Poole, editor of the Outdoor News Bulletin, a biweekly news service of the Wildlife Management Institute. The institute is one of the older national conservation organizations, and the program of this private group is devoted to the restoration and improved management of natural resources in the public interest.

Conservationists support the objectives of H.R. 11502. It is believed that there should be a high degree of coordination between Federal agencies that conduct or participate in pesticidal control programs and the U.S. Fish and Wildlife Service and appropriate State wildlife agencies. Improved communication between pest control and wildlife agencies, in fact, has been advocated repeatedly since the increased use of chemical poisons for agricultural, forestry, and other purposes in the period since World War II.

This committee, because of hearings on related proposals, is acquainted with the national controversy that has arisen as a result of large-scale pesticidal programs. The committee also is aware of the authenticated losses of fish, birds, and small mammals that have been reported by competent biologists in widespread areas following application of poisonous materials in various insect-eradication campaigns. The finding of dead animals in treated areas has been followed by laboratory analysis of their tissues and vital organs and the positive demonstration of the presence of the poisonous materials in the animals in concentrations capable of causing their deaths.

Although the institute endorses the objectives of H.R. 11502, it is doubted that enactment of the proposal will stimulate the practical degree of coordination that is needed between the pesticidal control and wildlife agencies. A formal statement by Congress of its desire to achieve coordination between the affected agencies and groups will be helpful, but generalized directives for coordination are less preferable than a specific plan to achieve the needed coordination.

The members of this committee are familiar with the revised and strengthened Fish and Wildlife Coordination Act that was reported by this committee and enacted as Public Law 85–624 in 1958. The original act was initiated in the early 1930's as a generalized expression by the Congress of its desire for improved coordination between Federal construction and fish and wildlife agencies. That early enactment proved unworkable and inadequate and it prompted this committee's positive position in support of the proposal leading to enactment of Public Law 85–624.

It is believed that H.R. 11502 presents a parallel situation. The agencies of the U.S. Department of Agriculture and the Department of Interior—principally through the Agricultural Research Service and the U.S. Fish and Wildlife Service—already have demonstrated their inability to truly coordinate pesticidal and wildlife conservation programs. Spokesmen of these agencies have participated in an interdepartmental liaison committee on pesticide-wildlife activities. The committee has failed its purpose. Attendance at meetings has revealed that the pesticide and wildlife groups have done little other than to argue the respective merits of their own activities, aspirations, and beliefs. The meetings often have ended with the agencies split further. The liaison committee even has failed to communicate proposed insecticidal campaigns and to provide opportunities for discussion of these campaigns before they are initiated.

National concern about the complex question of insect control-human health-wildlife relationships has spread widely. There are urgent demands that immediate, positive action be taken to correct the undesirable situation that has developed in the past few years.

It is believed that H.R. 11502 can be improved and made more positive. Suggested changes that would accomplish this include that (1) the appropriations requests of the plant and pest control agency be accompanied by a full description of the proposed pesticidal program and the interagency recommendations of the dosages, formulations, and methods and times of applications jointly suggested by the coordinating agencies, and (2) the Public Health Service, as well as the Departments of Agriculture and Interior, be instructed to take part in the planning of pesticidal programs, and (3) that competent representatives of all three agencies, as well as state personnel, be stationed in the field during control operations to conduct necessary surveys and investigations.

Experience with such control operations as gypsy moth in New York State, imported fire ant in the Southeast, and this summer's spruce bud worm campaign in Maine shows that there is sufficient time lag between program planning and initiation of field activities to enable the affected agencies to participate in the review and planning of the proposed control activities.

Their joint report could accompany the budget request. This would give the Congress an opportunity to review the proposed programs and would largely prevent the recurrence of misunderstanding that has arisen as a result of some

of the pest control activities that presently are planned and carried out by a single agency which represents only one of the many interests that may be involved.

Mr. DINGELL. Thank you very much, Mr. Poole.

Mr. Van Pelt?

Mr. VAN PELT. I would just like to say, Mr. Poole, that I think your suggestions would certainly be very helpful to this committee and I think that they are sound because we cannot in every instance solve some of these misunderstandings merely by passing a piece of legislation.

That is all.

Mr. DINGELL. Counsel?

Mr. ZINCKE. I have no questions, sir, but may I offer for the record at this time, a telegram addressed to Mr. Miller from Hugh Taylor, chief, division plant industries, Oregon State Department of Agriculture:

Request outcome of today's hearing on H.R. 11502. We wish to express opposition to this bill as being intolerable to cooperative program. Please advise the necessary procedure in presentation. Notification of hearing received too late to present formal opposition to committee.

And a telegram from the International Association of Game, Fish & Conservation Commissioners, signed by William E. Towell, chairman, legislative committee:

Urges your support of Chemical Pesticides Coordination Act, H.R. 11502. Would provide needed safeguard for protection of wildlife.

Also a letter and statement from the Animal Welfare Institute of New York City.

Mr. DINGELL. Without objection, they may be received for the record.

(The documents follow:)

JEFFERSON CITY, MO., *April 27, 1960.*

Hon. JOHN D. DINGELL,
House Office Building,
Washington, D.C.:

International Association of Game, Fish, and Conservation Commissioners, representing 50 State game and fish departments, urges your support of Chemical Pesticides Coordination Act, H.R. 11502. Would provide needed safeguard for protection of wildlife.

WILLIAM E. TOWELL,
Chairman, Legislative Committee.

STATEMENT BY CHRISTINE STEVENS, PRESIDENT, ANIMAL WELFARE INSTITUTE, NEW YORK, IN SUPPORT OF ENACTMENT OF H.R. 11502

On behalf of the Animal Welfare Institute, I wish to urge immediate enactment of H.R. 11502 because we believe it would help to prevent the cruel and unnecessary poisoning of countless birds and small mammals that would otherwise suffer an agonizing death from pesticides applied in heavy concentration and over large areas. Many of the creatures destroyed will also leave young to die a slow death of starvation. This is a poor way to reward those birds and animals who have for thousands of years kept noxious insects within reasonable control so that man has been able to live, thrive, and expand his agriculture.

If we permit the continually expanding use of the powerful pesticides developed from the German nerve gases and of other similarly potent poisons, we

will soon succeed in destroying the natural enemies of insect pests. Already as a result of mass pesticide spraying there are birdless areas in our country—stretches of woodland which were once alive with birds but where I have walked for miles without hearing or seeing a single bird.

The callous and thoughtless killing of the birds which can be found fluttering and gasping with desperate thirst after the DDT sprayings is inexcusable in itself. We should stop it for the sake of human decency.

There are also very practical reasons why the use of these dangerous pesticides should be strictly controlled, that is, (1) economic reasons, (2) health reasons, and (3) in order to preserve agricultural strength in the future. These three points could be discussed and documented at great length. To be brief, under the first heading, the taxpayer is forced to pay for the purchase of pesticides spread by the Federal Government over large areas in order to increase crop production in the face of great surpluses. He also has to pay the Food and Drug Administration to try to keep the poison residues out of the food derived from these crops.

This brings us to the second point: human health. All who have read the address by Dr. W. C. Hueper, Chief of the Environmental Cancer Section of the National Cancer Institute, before the science writers' seminar in Louisville, Ky., March 30, 1960 (see extension of remarks of Hon. Abraham J. Multer, Apr. 12, 1960, in the Congressional Record) are aware that research into the environmental causes of cancer has been discouraged and prevented to a great extent. Nevertheless, Dr. Malcolm M. Hargraves of the Mayo Clinic has made it clear that DDT and its solvents cause leukemia, aplastic anemia, Hodgkins disease, jaundice, and other blood disorders. Dr. Morton S. Biskind has described in detail human illness brought about by exposure to pesticides in amounts both large and small. The danger of repeated small doses of a carcinogen is well known. So is the rise in cancer and especially leukemia not only in adults but in children. Who is going to be the loser in our present chemical war against insects?

Point 3. The preservation of our agricultural strength for the future requires the taking of a longer view than that of killing off a season's batch of a particular insect pest. Each year, more insects become resistant to stronger and stronger doses of pesticides, but vertebrates, including man, cannot keep up in this respect. Thus while we are soaking the soil with pesticides, many of which will remain there for years being absorbed by food crops, the insects, illustrating with discouraging precision the law of the survival of the fittest among themselves, become adapted. Some have demonstrated an ability to withstand dosages of DDT 1,000 times greater than those originally needed to kill their ancestors (Audubon magazine, summer 1956). Each time we increase toxicity of applied pesticides, we kill more of the insectivorous vertebrates, birds, fishes, and mammals, who since prehistoric times have preserved a natural balance that has enabled all species to live on the earth together. Scientists who have studied the results of abrupt changes in this balance—a simplification of the ecosystem as it is sometimes called—express grave fears for our future if we continue to increase the spread of poisons. Their fears are soundly based.

To conclude, enlightened self-interest dictates the same policy as does humane consideration for our native American birds and animals: namely, strict control of the highly toxic pesticides now being used far too widely and carelessly. Enactment of H.R. 11502 should help to prevent, at the very least, excesses of the kind recently observed in many parts of the country. The Animal Welfare Institute respectfully requests favorable action on the measure.

Mr. DINGELL. Does anyone else wish to be heard?

Without objection the record of the hearing will remain open for a period of 10 days in order that any interested party may file any further views.

The committee stands adjourned until the call of the Chair.

(Whereupon, at 11:55 a.m., the committee adjourned, subject to the call of the Chair.)

(The following was furnished for insertion.)

CORVALLIS, OREG., May 6, 1960.

HOUSE COMMITTEE, MERCHANT MARINE AND FISHERY,
House Office Building, Washington, D.C.:

H.R. 11502 as written could seriously delay or otherwise interfere with the execution of numerous joint Federal-State pest control programs including such programs as grasshopper control, mosquito control, disease and weed control. It might prevent allocation of research funds from the USDA, National Institutes of Health, and National Science Foundation for basic research on the Nature of the Action of Chemicals Used in Pest Control. The bill could effectively transfer final administrative authority from various Federal agencies to the Fish and Wildlife Service. We urge that this bill as now written not be passed.

F. E. PRICE,
Dean and Director of Agriculture,
Oregon State College.

STATE OF OREGON,
DEPARTMENT OF AGRICULTURE,
Salem, May 6, 1960.

HOUSE COMMITTEE, MERCHANT MARINE AND FISHERIES,
House Office Building, Washington, D.C.

This department desires to make the following statements in opposition to H.R. 11502 for inclusion in the record of the hearing held May 3, 1960, and in accordance with our telegram from Mr. Hugh Taylor, chief, plant division, State department of agriculture, dated May 4, 1960.

H.R. 11502 will cause unnecessary and costly delays in emergency programs by reason of mandatory consultation with two additional agencies which lack experience in large scale economic pest control and eradication programs. Such consultation would make program planning cumbersome since normally one Federal agency, one State agency and often one country agency, as well as private individuals, would be involved, exclusive of the wildlife services, both Federal and State.

Fish and wildlife are currently protected by various regulations and pesticide label requirements, any additional protection would be superfluous. Present economic pest control agencies are efficiently and effectively handling the problem of pesticides with full regard for public interests and fish and wildlife.

There is a particular objection to placing any agency inexperienced in insect, plant, disease and related problems in a veto position over agencies with long experience and a history of success in their field, which we deem could include economic pest control agencies through research agencies under the present proposal.

Substantiating our belief that no serious problem exists which will be corrected by this bill, we wish to enter the following quotations from the American Institute of Biological and Science Bulletin, authored by the world recognized specialist, George Decker, head, section of economic entomology and Illinois National History Survey and Illinois Agricultural Experiment Station, Urbana, Ill.: "Considering the thousands of tons of insecticides that have been used and misused in the control of agricultural pests during the last 50 years, it can be concluded that to date the impact of insecticide usage on wildlife has neither been great nor disasterous. Actually considered from the broad point of view, the impact of agriculture and public health insecticide use on wildlife, has been insignificant when compared with many of the other every day activities of man. It will be a matter of only a few years until agricultural scientists and farmers will have to make ever increasing use of new advances in agricultural technology, including even greater use of insecticides and other pesticides to meet the Nation's food and fiber requirements."

Another quote from Robert L. Rudd and Richard Genelly entitled "Presticides, Their Use and Toxicity in Relation to Wild Life," California Department of Agriculture, Bulletin No. 7 which states: "Despite the widespread use of insecticides totaling billions of pounds in the last decade, profound fears that the

large scale usage of modern pesticidal chemicals would seriously upset the balance of nature and result in disasterous loses to wildlife, have not been realized. To quote from the most comprehensive and complete study of the problem which states: 'Considered in its broadest scope at the present pesticides seem to be only minor influents in nature compared to other factors in land and water development use'."

It will be appreciated if the above points are brought to the attention of the committee and given full consideration.

Sincerely yours,

JAMES F. SHORT,
Director, State Department of Agriculture.

RENO, NEV., *May 9, 1960.*

Senator ALAN BIBLE,
Washington, D.C.:

We understand hearings on House Resolution 11502 scheduled this week which does not give us proper time to file with committee our information in protest. Resolution as written appears very detrimental to all local government and Federal controls and possibly research programs. Please file protest of Nevada Department of Agriculture.

LEE M. BURGE,
Nevada Department of Agriculture.

HOUSE OF REPRESENTATIVES,
Washington, D.C., May 9, 1960.

Hon. FRANK W. BOYKIN,
Chairman, Subcommittee on Fisheries and Wildlife Conservation, Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: I have received a letter from the vice president of the Maine Fish & Game Association, indicating the support of this association for H.R. 11502, which would provide for advance consultation with the Fish and Wildlife Service and with State wildlife agencies before the beginning of any Federal program involving the use of pesticides or other chemicals designed for mass biological controls.

I wish to call to your attention the strong support which this legislation has from this statewide association in the State of Maine which is devoted to the conservation of our fish and wildlife resources.

Sincerely,

FRANK M. COFFIN, *Member of Congress.*

NORTH CAROLINA DEPARTMENT OF AGRICULTURE,
Raleigh, May 9, 1960.

Hon. HERBERT BONNER,
House of Representatives,
Washington, D.C.

DEAR MR. BONNER: I should like to register my opposition to H.R. 11502 recently introduced by Mr. Wolfe, of Iowa.

Members of the Southern Plant Board and all who are interested in plant pest control work in the South are convinced that such a bill would cause irreparable damage; therefore, we wish to urge your support in opposition to this ill-advised proposed legislation.

Mr. R. P. Colmer and others have appeared before your committee in opposition to this bill, and we should like to support them wholeheartedly in this position.

Sincerely yours,

C. H. BRANNON, *State Entomologist.*

STATEMENT SUBMITTED FOR THE RECORD BY DEVEREUX BUTCHER, EDITOR, NATIONAL WILDLANDS NEWS, WASHINGTON, D.C.

National Wildlands News regards with gratification Congressman Wolf's introduction of H.R. 11502. Legislation to control in some measure the widespread irresponsible use of poisons for the reduction of insect pests and plants already is overdue, and National Wildlands News endorses H.R. 11502, if it is strengthened by amendment.

Congressman Wolf, and perhaps almost everyone who has read the bill, realizes that it needs to be strengthened. We do not approve of an alternative suggestion to amend the Pesticides Research Act of 1958. We feel that the provision in H.R. 11502 requiring prompt reports to Congress is important.

National Wildlands News has noted that Congressman Wolf, in his announcement of his bill before the House of Representatives, on March 31, said the bill would apply only to Federal programs and would not affect State control agencies or the activities of private individuals. He added that Uncle Sam can't do everything and that it would be up to the States to accept some of the responsibility. We are in sympathy with that, and would go a step further by saying that Uncle Sam not only can't, but should not do everything. We suggest, however, that because the use of pesticides, of which the effects on wildlife, plant life, and on man himself are unknown, poses a constant threat, H.R. 11502 be amended to make it a Federal offense to place on the market, to sell or to use any pesticide poison that has not been thoroughly and exhaustively tested by Federal wildlife and agricultural biologists.

The responsibility for adhering to such an amendment would rest first with the chemical manufacturers themselves, and would prohibit their placing untested chemicals on the market.

It unquestionably is true, as the U.S. Fish and Wildlife Service has pointed out, that if H.R. 11502 were to be enacted promptly, the Service would have little knowledge on which to base judgment of programs and pesticides. This fact underscores the need for the very earliest possible enactment.

National Wildlands News suggests that, for the sake of clarity in the wording of H.R. 11502, the words "biological controls" in the title and on page 2, line 15, as well as the term "biological control" on page 1, line 9, be eliminated, because this term usually refers to the use of a prey species of insect or fungus to control or eliminate a pest species. The concluding words of the title might be amended to "* * * the use of chemicals designed for mass control of plants and insect pests." This would have the added advantage of including in the sense of the title not only pesticides, but also herbicides.

On page 1, line 9, and page 2, line 15, the word "biological" might better be changed to "pest and plant."

STATEMENT OF THE INTERNATIONAL ASSOCIATION OF GAME, FISH & CONSERVATION COMMISSIONERS

Mr. Chairman and gentlemen of the committee, my name is Carl D. Shoemaker and I am the general counsel of the International Association of Game, Fish & Conservation Commissioners, an organization composed of the fish and game directors of the 50 States.

We asked Dr. Clarence Cottam, director of the Welder Wildlife Foundation, an expert and leading authority of pesticides, to prepare a statement for us and I ask permission to submit it to your committee.

SINTON, TEX., *April 27, 1960.*

Hon. HERBERT BONNER,
Chairman, Committee on Merchant Marine and Fisheries, Congress of the United States, Washington, D.C.

DEAR CONGRESSMAN BONNER: I understand that a public hearing has been called to consider the merits of H.R. 11502, a bill introduced by Congressman Wolf that might well have been called a coordination act on the use of pesticides. I have carefully studied this bill. As you and some of the other members of your committee may know, I have had rather close contact and resonably wide experience with various pesticide problems for some 25 years, including the years I served as an official of the U.S. Fish and Wildlife Service. Since I resigned from the Federal Service in 1954 I have maintained an active interest in the

subject of pesticides. I have read extensively on the subject and I have studied the problem in the field in a number of Southern States. For the past 3 years, I have given special consideration to the study of the fire-ant-eradication program directed by the U.S. Department of Agriculture in the Southeastern States, from Texas to Florida. It is my considered opinion that House bill H.R. 11502 is an exceedingly important step in the right direction, and I am convinced beyond any question that it is decidedly in the public interest. I hope, therefore, that the bill passes. Checks and balances in government are essential if democracy in our beloved country is to continue.

WILDLIFE PEOPLE ARE NOT OPPOSED TO WISELY DIRECTED CONTROL PROGRAMS

I should like to emphasize that responsible and experienced wildlife people are not opposed to needed and properly supervised pest control, for they realize that controls were developed in response to a public need and demand. Many chemical controls are effective and economic tools of management when they are wisely directed and skillfully applied. It goes without saying that pesticides properly formulated and wisely applied have done much to improve agriculture, afford better health, and generally improve the American way of life. However, there are dangerous extremes and abuses creeping in that should be recognized and corrected at once. This bill, if enacted into law, would aid immeasurably in curbing present abuses and extremes in control programs. The bill is not intended as a preventative or stumbling block to needed, properly planned, and skillfully directed control operations.

As evidence that wildlife people generally are alarmed over present trends in Federal control, it can be reported that the International Association of Game, Fish & Conservation Commissioners established a committee of eight members a year and one-half ago to look into the pesticide problem. The International, in connection and in cooperation with the Southeastern Association of Game & Fish Conservation Commissioners prepared and sent to each State conservation or fish and game department a summary statement of the problem with the hope that each State wildlife department would take appropriate action to help prevent the serious loss of wildlife that was believed to be occurring through the irresponsible and shortsighted use of pesticides by the control arm of our U.S. Department of Agriculture. A copy of that statement is appended hereto, as is also a resolution adopted by the Southeastern Association. Both the summary statement and the resolution, I believe, were sent to various Members of Congress as a means of presenting them with some of the facts pertaining to this complex and serious pesticide problem.

FIRE-ANT-ERADICATION PROGRAM AND PROPAGANDA

I believe that the most severe criticism offered by conservationists of the control program has been directed at what they feel has been a thoroughly irresponsible and poorly directed fire-ant-eradication program conducted in the nine Southeastern States and directed by the control arm of the U.S. Department of Agriculture. In my opinion, this program is an example of arrogant bureaucracy. The philosophies expressed and procedures followed affect all our citizens and, if they should become established, would strike at the heart of democracy itself. Therefore, this program far transcends the importance of any local or control issue.

Propaganda supporting this program has been characterized by extreme, inaccurate, and unfounded assertions. Inaccuracies, even in high-level pronouncements, have been so numerous and serious as to make it incredible that such could come from a responsible and important arm of our Government.

For a recitation of facts in this case I submit a statement prepared by the International Association of Game, Fish & Conservation Commissioners' committee on pesticides, appendage No. 3. A review of the facts will indicate that the fire-ant-eradication program was started with far too little research as to the need of control, the food habits and economic relations of the fire-ant, safe and effective procedures of control, and the immediate, indirect, and accumulative effects of the eradication program.

The record is clear cut that cooperation by Agriculture's control workers with wildlife people on State, Federal, and local levels has been most unsatisfactory. In relatively few instances have even State biologists been permitted to know when or where a specific area was to be treated. Information given concerning

treatment too frequently has been considerably short of the truth. Furthermore, the information and findings of the biologists have been ridiculed and discredited. As a consequence of such treatment, contention, distrust, and a complete lack of cooperation in the public interest have been the inevitable consequence. Agriculture people have made effort to get wildlife biologists fired or transferred. More details of this can be found in the committee report, appended.

Dr. Neely Turner, State entomologist of Connecticut and a leading authority in the entomological field, has appropriately pointed out in a public address to the control fraternity that entomologists have a responsibility with wildlife groups and nature lovers to cooperate and earnestly seek a reasonable solution to the present conflict between control workers and wildlife people. In his address he stated, "* * * regulatory entomologists of the State and Federal Governments make the decisions that control or eradication is of more importance than hazards to wildlife. These entomologists function as prosecutor, judge and jury, tax assessor and collector, and sheriff to enforce their own orders. There is going to be trouble as long as this is the case. * * *" Certainly these autocratic decisions which usually ignore, belittle or deny any adverse effects on wildlife are indeed a major cause of conflict and friction between Federal, State and local wildlife biologists and entomologists. This, I believe, clearly shows the need of a coordination act.

EFFECTS OF THE CONTROL PROGRAM ON WILDLIFE

Factual details and specific examples of the serious effects of the control program upon wildlife are well documented. Appendage No. 4, an address given by invitation before the Agriculture-Aviation Conference at Texas Agricultural and Mechanical College gives examples of these facts. Despite Agriculture's contention to the contrary, field studies by competent wildlife biologists employed by Federal and State agencies, from Florida to Texas, have shown that severe losses of wildlife have resulted from the use of the chlorinated hydrocarbons, heptachlor and dieldrin, in the imported fire ant eradication program. Further, these studies conducted in different States and under different conditions of vegetative cover, water relationships, and precipitation show that serious reduction of wildlife populations continues even after 2 or 3 years following treatment. We do not know how long these serious consequences will continue. Neither do we know the ultimate effects upon domestic animals and, more importantly, upon human beings. In an east Texas area birdlife decreased 92 to 97 percent in 2 weeks along roads in treated areas. In acre plots studied, bird populations were reduced 85 percent and nesting success 89 percent. In Alabama a 9,900-acre farm experienced an 88 percent decrease in quail populations following treatment. A Georgia area, even after two breeding seasons following poisoning, showed considerably less than half the normal number of quail found on adjacent and comparable untreated land.

IRRESPONSIBLE TREATMENT

A serious criticism of Agriculture's program has been that areas having few or no fire ants have been treated by excessive aerial applications of heptachlor and dieldrin. Here the loss of wildlife has been excessive and we feel quite unnecessary. After 2 years of operation, and after 1,700,000 acres of land have been treated with stable, nonspecific, and dangerous poisons, Agriculture has announced that this application can be reduced by 37½ percent. Recently, this was further reduced to only 25 percent of the original application—a reduction of 75 percent—and, this after 2 years of operational control. Do we need any better proof that this important subject was given little research before an operational program was launched? The above-mentioned reduction and control came after the expenditure of several million dollars of Federal funds and a somewhat lesser amount of cooperative funds from States and property owners. These savings would certainly have paid for a lot of research which should have preceded rather than succeeded the operational activity.

As evidence that the program is not very cooperative and not highly appreciated by the States, Alabama, a few months ago, refused to contribute further to the cooperative program. Florida's appropriation was considerably reduced, and I believe other States legislatures have appropriated no funds for this fire ant eradication. I understand also that farmers in some States have contributed little toward this cooperative venture.

In Texas, the Federal Department has been so anxious to get public support for its tenuous program that not only is the poison given at no cost to any property owner who will use it (regardless of the need) but, as an extra inducement, property owners are loaned grass seeders (also at no cost) to spread the poison. A newspaper account in the Beaumont Journal of September 24, 1959, carrying the Government's invitation, innocently or callously, assures the uninformed public that heptachlor can be applied at no danger to livestock, pets, or birds if care is taken to keep the poison out of ponds or water troughs in the area. It further states that if these precautions are taken there will be no ill effects. The article goes on to state that one application has been known to be effective for as long as 5 years. It is alarming that there were practically no instructions for safe handling, no supervision whatever of application rates, or records of when or where or how the poison chemicals were applied, except to say the application rate recommended was "12½ pounds per acre." If the pesticide being referred to in the newspaper article was technical heptachlor it would be equivalent to 187½ to 250 pounds of DDT per acre. If it represented the 10 percent material with its carrier, it would be the equivalent of 1¼ pounds of technical heptachlor per acre, or 18¾ to 25 pounds of DDT per acre. Are the fieldmen of Agriculture so uninformed that they can assure the lay public that poison spread on the ground, that will be effective for 5 years and is equivalent in toxicity to 18¾ to 25 pounds DDT per acre, is safe for livestock, pets, birds or children? One pound of DDT last year, placed out under careful control conditions in a New Brunswick forest, practically eliminated the year's salmon run, and a similar application was devastating to brown trout and whitefish of a large acreage of the upper Yellowstone watershed of Montana.

FIRE ANT IS NOT A THREAT TO AGRICULTURE, LIVESTOCK, OR HUMANS

Despite the Department of Agriculture's scare campaign and false propaganda, detailed scientific studies by competent entomologists in Alabama and elsewhere have shown the fire ant is of such minor importance that it is not listed, nor has it ever been listed, among the 20 most important economic pests in Alabama where the heaviest fire ant population occurs. Scientists have shown that the imported fire ant, which builds mounds that are a nuisance in certain farm areas and does inflict unpleasant stings, is not a serious threat to farm crops, livestock, or wildlife. Neither is it a serious threat to human health. At times, it is actually beneficial because of its normal habit of feeding upon other insects. It is primarily predaceous in its feeding habits. It is well to emphasize that safe, effective, and economical control methods have been worked out that are in operation in each of the major fire ant States. This program can be implemented without resorting to destructive and widespread aerial applications of toxic insecticides as has been the common practice in the current U.S. Department of Agriculture eradication program.

We are not opposed to fire ant or any other needed control, but merely urge that sanity and maturity of judgment be exercised in this control program and that due consideration be given other interests and resources.

ERADICATION IS IMPROBABLE

It has long been the opinion of most competent and reputable entomologists familiar with the problem that total eradication of the fire ant in the United States is an objective almost impossible to attain and particularly at a cost commensurate with the expected benefits. As evidence that competent entomologists are aware of this, officials and control workers from all the Southern States met recently at Biloxi, Miss., with the leaders of the Plant Pest Control Division of the U.S. Department of Agriculture. According to the newspaper account of the meeting they held, they announced that eradication has not been accomplished and it is not a probability nor perhaps a possibility in the foreseeable future.

ZERO TOLERANCE FOR HEPTACHLOR

Despite the control workers' repeated assurance that the toxicants used in the fire ant eradication are safe and are doing no significant damage, studies of the Food and Drug Administration recognize that there are serious hazards involved. Records indicate that in 1950 this agency prescribed a maximum tolerance of 0.1 part of heptachlor per million on potatoes and, in 1955, prescribed a tolerance of not to exceed 0.1 per million of this same poison on 33

additional agricultural commodities and foods. After further experimentation and study, the Food and Drug Administration then announced recently that hereafter there would be a 0 tolerance of heptachlor and its epoxide on most vegetables, milk, meat, and upon alfalfa, pasture grasses, and range grasses. I believe it is significant for all people to recognize the fact that the more study given these toxicants, the more hazardous they appear to become. It should be remembered that the secondary or side effects of poisons always represent a delayed action, and the more information and study given the problem, the more serious do we find these secondary effects to be. A safe conservation approach is therefore advisable. Certainly it is imperative that a reasonable degree of research precede rather than succeed these control operational programs.

The facts given show clearly the need of a coordination act to protect the public, our domestic animals, and our wildlife from the irresponsible and shortsighted application of poisons used in pest control operations. I, therefore, urge strongly that Public Law 11502 be approved by the Congress.

Respectfully submitted.

CLARENCE COTTAM.

SINTON, TEX., *April 27, 1960.*

Hon. FRANK W. BOYKIN,
House Office Building,
Washington, D.C.

DEAR CONGRESSMAN BOYKIN: You may remember me as a former Assistant Director of the U.S. Fish and Wildlife Service. I was in your office on quite a number of occasions and had a good many contacts with you.

I have just seen copy of H.R. 11502, and my memory is that you are one of the senior members of the House Committee on Merchant Marine and Fisheries. I merely wanted to express my humble opinion as to the importance of this bill. Most assuredly we need a coordination act in the field of pesticides, and I sincerely hope that you and your committee can give this bill favorable consideration.

I have just learned that there will be a public hearing on this bill early in May. Therefore, I am sending a statement to our good friend, Congressman Herbert Bonner, chairman of that committee, with the hope that my views may be of some little benefit. I have studied the pesticide problem, as you may well remember, for quite a number of years and have had considerable contact with the program in the Southeastern States. In fact, I have been in your own State on a good many occasions and spoke in Mobile just a few months ago on the broad subject of pesticides before the Alabama State Wildlife Federation. It seems to me Mr. Wolf's bill is a step in the right direction, although I should like to have seen it go just a bit further in coordinating pesticide applications with wildlife conservation. We need this bill just as we needed the coordination act to insure that reclamation and the Corps of Engineers wisely use public funds so that wildlife might be benefited and not be damaged in the process of reservoir construction and flood prevention.

I want to make it clear that I am not opposed to legitimate pesticidal control. I only hope that ways and means can be found for effectively coordinating this activity with other land-use practices and that wildlife will be given its just consideration in the public interest. The details of my views can be found in the statement that has already been sent to Congressman Bonner. I have no doubt that you will either be presiding at this hearing or will be a senior Congressman at the hearing. I merely want you to know that we greatly appreciate the enviable record you have already made in the field of conservation legislation. We hope you can see your way clear to vote in favor of this coordination act.

With kind personal regards and all good wishes, I am,

Sincerely yours,

CLARENCE COTTAM.

STATEMENT OF MRS. CARL D. SHOEMAKER, VICE CHAIRMAN, LEGISLATION COMMITTEE, NATIONAL COUNCIL OF STATE GARDEN CLUBS, INC., WITH RESPECT TO H.R. 11502

Mr. Chairman and members of the committee, my name is Mrs. Carl D. Shoemaker. As vice chairman of its legislation committee, I am representing the National Council of State Garden Clubs, Inc., a nonprofit organization whose membership of more than 400,000 persons is distributed among 47 federated States and the District of Columbia.

While the National Council recognizes the necessity of animal and plant pest control in agricultural and ornamental land management, at the same time it is aware that many of the sprays, fungicides, and insecticides are highly toxic with unpredictable effects on individual organisms, the soil, water, and the natural community of organisms. Also as their use becomes more widespread their hazards to human health are becoming more alarming.

In May 1958, by resolution of its national convention, the national council urged increased funds for Federal research on the effects of chemical insecticides. It appealed to the Department of Agriculture to reduce its broad-scale spraying program in areas where effects may be detrimental to human health, streams, soil, birds, and mammals.

The national council has not had opportunity, in convention assembled, to express itself specifically on the Wolf bill, H.R. 11502, now under consideration, but the purpose of coordinating the programs of governmental agencies engaged in biological control measures that employ the use of chemical pesticides is of interest and concern to the national council, as its previous expressions on this subject would suggest.

With your permission, Mr. Chairman, I should like to include for the record, an article from the March-April 1960 issue of the National Gardener (official publication of the National Council of State Garden Clubs, Inc.) entitled "From A to Z in Pesticides." Here are listed 27 chemicals with indications of their toxicological effects on man, wildlife, bees, and other beneficial insects, as well as effects on pests.

Thank you.

[From March–April 1960 issue of National Gardener, official publication of the National Council of State Garden Clubs, Inc.]

THE PLANT DOCTOR DISCUSSES PESTICIDES—USES AND HAZARDS—FROM A TO Z IN PESTICIDES

(Dr. Cynthia Westcott, garden enemies chairman)

With pesticide hazards so much in the news it seems appropriate to summarize present information on chemicals used for pest control in homes, gardens, food production, and large-scale eradication programs. Some of the toxicity data come from the recently published "Handbook of Toxicology," volume III, "Insecticides," prepared under the direction of the National Research Council, National Academy of Sciences. This volume digests 3,404 research papers on toxicological effects on man, wildlife, bees, and other beneficial insects, as well as pests.

All pesticides registered for sale have been tested on laboratory animals at least 2 years. White rats are usually used for determining acute oral toxicity to mammals; rabbits are used for testing the dangers from skin absorption. Oral toxicity is standardized as the dosage, in milligrams per kilogram of body weight, lethal to 50 percent of the test rats. The figures vary from LD_{50} 6,000 for methoxychlor, one of the safest. The figures are only approximate and hazards other than ingestion have to be taken into account but they provide signals for caution. It would be folly to use a phosphate with a low LD_{50} without following all directions on the label for protective clothing, respirator, goggles, and gloves. Some poisons enter through the eyes.

The Federal Food and Drug Administration sets a tolerance for each chemical used on food crops. This is the amount of allowable residue at harvest expressed in parts per million. A tolerance of 0.1 part per million is equivalent to 1 grain of sugar in a 5-pound bag, or the thickness of a sheet of cellophane compared to the height of the Washington Monument.

The chemicals are listed alphabetically by the approved common name, where one has been adopted, otherwise by trade name (in capitals).

Aldrin: Highly poisonous insecticide for grasshoppers, bettle grubs, and other soil insects; hazardous to fish, birds, bees, but not to soil micro-organisms. LD_{50} 40; tolerance 0.1 to 0.25 ppm.

Allethrin: Synthetic pyrethrin, contact insecticide, with little or no hazard to man or wildlife. LD_{50} 200; exempt from tolerance.

ARAMITE: Excellent miticide for ornamentals, safe to handle, little hazard to wildlife but possibly carcinogenic if ingested. LD_{50} 3,900; zero tolerance on fruits and vegetables.

Calcium arsenate: Stomach insecticide, dangerous to wildlife, bees, and many beneficial insects. LD_{50} 50; tolerance 3.5 ppm.

Calcium cyanide (Cyanogas): Fumigant, intensely poisonous, hazardous to all life; concentration of 200 ppm. in air fatal to man.

Captan: Very safe fungicide and seed protectant. Tolerance 100 ppm.

Carbon disulfide: Insecticide fumigant, very inflammable, highly toxic if inhaled but leaving no poisonous residue. Exempt from tolerance.

Carbon tetrachloride: Insecticide fumigant, toxic by inhalation and skin absorption but without poisonous residue. Exempt from tolerance.

Chloranil (Spergon): Fungicide, seed protectant. Not highly toxic.

Chlordane: Contact insecticide for ants, grasshoppers, soil and household insects. Readily absorbed through skin and toxicity hazard estimated as 4 times greater than DDT; harmful to fish, wildlife, bees and beneficial insects. LD_{50} 200 to 500; tolerance 0.3 ppm.

CHLOROBENZILATE: Very safe miticide. LD_{50} 3,100; tolerance 5 ppm.

CHOLOPICRIN (tear gas): Fumigant for insects, nematodes, weed seeds, some fungi; not safe around living plants. Gas highly poisonous to man and wildlife but no residue. Exempt from tolerance.

Copper Compounds: Fungicides, poisonous only if taken internally in large doses. Exempt from tolerance.

DIAZINON: Promising insecticide, only moderately toxic. LD_{50} 150 to 220; tolerance 0.75 ppm.

D-D: Soil fumigant for nematodes, wireworms, etc., toxic to mammals by ingestion or inhalation but irritating enough to minimize danger; little hazard to wildlife if used as directed. Apply only to fallow soil, 3 to 4 weeks before planting. LD_{50} 140.

DDT: Broad spectrum insecticide with long residual effect. Only mildly toxic to mammals, less harmful to bees than many other pesticides but toxic to many beneficial insects; hazardous to fish in low dosage, to birds at more than 2 pounds per acre. LD_{50} 250; tolerance 7 ppm.

Demeton (Systox): Systemic phosphate insecticide, highly poisonous through eye and skin, absorbed even faster than parathion. LD_{50} 9; tolerance 0.3 to 1.25 ppm.

Derris: Contact insecticide of low toxicity for mammals but very toxic to fish, fatal for bees. LD_{50} 400; exempt from tolerance.

Dichlone (Phygon): Fungicide and seed protectant, not highly toxic. Tolerance 3 to 15 ppm.

Dieldrin: Stomach and contact poison, with toxicity hazard about 5 times that of DDT; rapidly absorbed through skin. Hazardous to fish and wildlife; tends to persist in soil but does not kill micro-organism, so useful for grub control. LD_{50} 87; tolerance zero to 0.25 ppm.

DIMITE: Miticide. Not very hazardous. LD_{50} 1,000.

Dodine (Cyprex): Fungicide valuable for fruit diseases, of low mammalian toxicity. LD_{50} 1,000.

Endrin: Highly poisonous insecticide, miticide, especially recommended for cyclamen mite; 3 times as hazardous as aldrin, 15 times as toxic as DDT, for man and wildlife. LD_{50} 7; zero tolerance.

Ethylene dibromide: Insecticide and nematocide fumigant, less toxic than methyl bromide but hazardous, absorbed through lungs, skin. Harmful to living plants. Tolerance 5 to 10 ppm.

Ferbam: Iron carbamate fungicide, not highly toxic but possibly irritating if inhaled. Tolerance 7 ppm.

Glyodin: Fungicide for fruit diseases, some ornamentals, not highly toxic. Tolerance 5 ppm.

Heptachlor: Highly poisonous insecticide for ants, grasshoppers, beetle grubs, etc.; toxic to game birds, bees, until residue weathers (about 3 weeks); about twice as hazardous as chlordane. LD_{50} 90; tolerance 0.1 ppm.

KARATHANE: Fungicide, specific for powdery mildews, and miticide. No tolerance established.

KELTHANE: Miticide, of very low toxicity to mammals but effective for cyclamen mite; will not harm bees. LD_{50} 575; tolerance 5 to 10 ppm.

Lead arsenate: Protective insecticide for chewing insects; highly poisonous if swallowed; toxic to bees. LD_{50} 100; tolerance 7 ppm.

Lime-sulfur: Fungicide, insecticide, no hazard to man or animals as commonly used. Exempt from tolerance.

Lindane: Potent insecticide, about twice as toxic as DDT; harmful to fish, bees. LD_{50} 125; tolerance 10 ppm. for some crops.

Malathion: Broad-spectrum phosphate insecticide but of low toxicity to mammals (100 times less toxic than parathion); more harmful than DDT to bees and some beneficial insects; injurious to some plants at certain concentrations. LD_{50} 1500; tolerance 2 ppm. for corn, 8 for fruits, zero for milk.

Maneb: Manganese carbamate fungicide, not highly toxic. Tolerance 0.1 ppm. for potatoes, 7 ppm. for fruits.

Methoxychlor: Contact insecticide, analog of DDT, safer for mammals, about same effect on bees. LD_{50} 6000; tolerance 14 ppm.

Methyl bromide: Insecticide, nematocide fumigant; extremely hazardous by inhalation and without any odor to give warning; to be used only by expert operators. LD_{50} 9; tolerance 20 ppm.

MYLONE: Soil nematocide, fungicide, herbicide, but not safe around living plants.

Naphthalene: Insecticide fumigant. Not toxic as commonly used but fumes may injure plants.

NEMAGON: Nematocide fumigant, safe around living plants under some conditions.

NEOTRAN: Miticide, only one-tenth as toxic as DDT to mammals. LD_{50} 5000.

Nicotine: Contact insecticide, highly poisonous ingested, inhaled or applied to skin but with little residual effect; harmless to bees and most beneficial insects. LD_{50} 50; tolerance 2 ppm.

Oils: Contact insecticides of low toxicity to mammals. Exempt from tolerance.

Ovex: Miticide, especially for egg stage, safe to use, harmless to bees. LD_{50} 2050; tolerance 3 to 5 ppm.

Parathion: Highly toxic organic phosphate insecticide, miticide, not to be used without protection; hazardous to bees, wildlife but with short residual effect. LD_{50} 3; tolerance 1 ppm.

PHALTAN: Fungicide, analog of captan, good for powdery mildew as well as leaf spots and very safe. LD_{50} 10,000.

PERTHANE: Insecticide related to DDT but much safer, effective for some fruit pests. LD_{50} 8170.

PHOSDRIN: A new phosphate proving dangerous even to operators accustomed to working with parathion.

Piperonyl butoxide: Synergist for pyrethrum, not hazardous, used in "bombs" for house plants. LD_{50} 10,000.

Pyrethrum: Contact insecticide, safe as commonly used; little hazard to bees and beneficial insects, toxic to fish. LD_{50} 1500. Exempt from tolerance.

Rotenone: Contact, stomach insecticide highly toxic to fish but of low toxicity to most mammals; in form of ground derris can kill nestling birds. LD_{50} 100 to 1000 according to form; exempt from tolerance.

Ryania: Contact and stomach insecticide of low toxicity to mammals. LD_{50} 750; exempt from tolerance.

Sabadilla: Contact insecticide, irritating but relatively harmless. LD_{50} 4,000; exempt from tolerance.

Sevin: Broad-spectrum insecticide, useful for fruit insects; of rather low mammalian toxicity but harmful to bees and some beneficial insects. LD_{50} 540.

Sulfur: Fungicide, miticide, non-toxic to mammals but harmful to some beneficial insects. Exempt from tolerance.

TDE, DDD (Rhothane): Contact insecticide, analog of DDT, safer for mammals, more toxic for some fish. LD_{50} 3,400; tolerance 7 ppm.

TEDION: Selective miticide, so safe that even large doses gave no mortality to test rats.

TEPP: The most hazardous pesticide in general use but with residue quickly disappearing and so used on vegetables close to harvest. LD_{50} 2; zero tolerance.

THIMET: Systemic insectivide, excellent for control of birch, holly and other leaf miners, thrips, etc., but extremely poisonous. LD_{50} 3.7.
Thiram: Organic fungicide good as seed protectant (Arasan) and for lawns (Tersan). Not highly toxic. Tolerance 3 to 7 ppm.
Toxaphene: Poisonous contact insecticide (chlorinated camphene); about as toxic as lindane for mammals, more toxic to dogs which are especially sensitive to it; toxic to fish. LD_{50} 60 to 90; tolerance 7 ppm.
Zineb: Zinc carbamate fungicide, not highly toxic. Tolerance 7 ppm.
Ziram: Zinc carbamate fungicide used more on food crops than ornamentals. Tolerance 7 ppm.

STATEMENT OF L. S. HITCHNER, EXECUTIVE SECRETARY, NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION, WASHINGTON, D.C., RE H.R. 11502

On behalf of the National Agricultural Chemicals Association, we wish to comment on H.R. 11502 as follows:

The agricultural chemical industry are fully in accord that there should be close coordination and exchange of information between the various agencies of Government interested in pest control. These agencies include the Food and Drug Administration of the Department of Health, Education, and Welfare, the U.S. Public Health Service, the Fish and Wildlife Service, and various segments of the U.S. Department of Agriculture. The primary responsibility, however, under existing Federal laws and also under supplementary State laws, is administered by the U.S. Department of Agriculture.

We see no need for legislation involving only the Fish and Wildlife Service. By administrative action, the various agencies could very readily set up a committee to coordinate their activities. We believe this has been done in the last few months.

While the principles of the legislation are sound, there are emergency situations involving both agriculture and public health where any restriction on financial assistance or aid would seriously curtail and endanger such programs, and any legislative requirements of the kind indicated in the bill would, in our opinion, seriously jeopardize such situations.

A coordinated committee appointed by administrative action could in our opinion much more efficiently exchange information under such conditions.

A typical example is the recent encephalitis epidemic in New Jersey, caused by disease-carrying insects, where immediate action had to be taken. There are numerous examples of emergency pest outbreaks in agricultural areas involving cotton, wheat, corn, and other food products where prompt action is necessary on the part of a single Government agency.

We should like to also call to your attention the fact that the National Academy of Sciences are now forming a committee of scientists to study the entire problem of pest control in relation to wildlife and the operation of the Government agencies on their pest-control programs. We believe that the study to be made by this committee and their report justify a delay on legislation at this time.

STATE OF NEW HAMPSHIRE FISH AND GAME DEPARTMENT,
Concord, May 3, 1960.

Hon. HERBERT C. BONNER,
Chairman, House Committee on Merchant Marine and Fisheries, House of Representatives, Washington, D.C.

DEAR MR. BONNER: We here in New Hampshire want to go on record as urging a speedy passage of H.R. 11502, the Chemical Pesticide Coordination Act.

Sincerely yours,

RALPH G. CARPENTER, 2d., *Director.*

STATEMENT BY WILLIAM A. REASKI, EXECUTIVE SECRETARY, IOWA DIVISION, IZAAK WALTON LEAGUE OF AMERICA, INC., GUTHRIE CENTER, IOWA, ON H.R. 11502

The Iowa division of the Izaak Walton League of America believes the widespread use of highly toxic insecticides and herbicides without regard to the end results of such use on human life, wildlife, and fishlife is a most dangerous practice which should be controlled at the earliest possible moment.

The Iowa division of the Izaak Walton League recognizes that H.R. 11502 is definitely a step in the right direction to control the indiscriminate use of such insecticides and herbicides for the following reasons:

1. The U.S. Department of Agriculture, under whose directions and recommendations the majority of insecticides and herbicides are being used presently, has publicly stated that the primary purpose of the Department is to increase the efficiency of agricultural production.

2. The USDA apparently has little, if any, data on the end results of insecticides and herbicides which it so willingly and blithely recommends using. The truth of this statement is enhanced by the USDA actions in connection with its handling of the fire-ant program in the Southern States. They started using massive doses and gradually reduced the dosage down to one-eighth of the original prescription before the program was very far along. This action pretty well illustrates they have little genuine knowledge on which to base such programs.

3. The USDA has restricted the use of some other insecticides and herbicides which they formerly recommended wholeheartedly. If it had thoroughly determined the end results of the chemicals involved before making their original recommendations, it most certainly would not have been necessary to make an about-face later.

4. The USDA claims to have complete information about the end results of the insecticides and herbicides which it recommends so widely for public usage. Yet, they are quite evasive when asked to supply data on the aftereffects of the use of these chemicals. In fact, it is generally believed that the U.S. Food and Drug Administration and the U.S. Public Health Service have been the agencies which have been responsible for curbing the use of some insecticides and herbicides rather than the USDA.

5. Many of the insecticides and herbicides have much longer and more far-reaching effects than is generally recognized. Naturally, we are even still in the effects of these chemicals on fish and wildlife. However, we are even still more interested in their final effects on human life, for humans are at the top of the food chains involved. We are the ultimate consumers, in some form, of all the things which are affected by insecticides and herbicides and this includes our everyday foodstuffs.

6. The number of people who are suffering occupational hazards through direct contact with insecticides and herbicides is definitely on the upswing.

Consequently, we ask you to act favorably on this act and to support it on the floor of Congress.

ENTOMOLOGICAL SOCIETY OF AMERICA,
College Park, Md., May 17, 1960.

Re H.R. 11502.

SECRETARY, HOUSE COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Subcommittee on Fisheries and Wildlife Conservation,
House Office Building, Washington, D.C.

DEAR SIR: May I thank you in advance for bringing this letter to the attention of the committee?

We should like to briefly comment upon H.R. 11502, a bill providing for advance consultation with the Fish and Wildlife Service and with State wildlife agencies before undertaking any Federal program involving the use of pesticides or other chemicals designed for mass biological control.

We wish to recommend against the enactment of this proposed legislation. We have as members most of the professional entomologists who are employed by the U.S. Department of Agriculture and by the U.S. Department of the Interior. These scientists, as well as administrative personnel in the two Departments, have always had close working relationships and have always understood the equal importance of wildlife conservation and of the production of food and fiber. We therefore believe H.R. 11502 to be unnecessary.

In addition this proposed legislation in effect grants to one department a veto power over actions within the prerogative of another. This will present a serious handicap to orderly operations of the Department of Agriculture and could result in the wide dissemination of introduced pest organisms while a program was being reviewed.

We wish therefore to emphasize our recommendation for nonenactment of H.R. 11502.

Very truly yours,

R. H. NELSON, *Executive Secretary.*

STATE OF NEBRASKA,
DEPARTMENT OF AGRICULTURE AND INSPECTION,
Lincoln, May 6, 1960.

Congressman DONALD F. MCGINLEY,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN MCGINLEY: It has just come to my attention that H.R. 11502 has been introduced to the House. This act is called the Chemical Pesticides Coordination Act.

This bill requires that before any Federal program involving the use of pesticides or other chemicals designed for mass biological controls can be instigated prior consultation and approval must first come from the U.S. Fish and Wildlife Service as well as the State wildlife agencies in the States involved.

I wish to advise I think this is a poor bill. Often the need for carrying on a spray program calls for immediate action and there is no time for delays while awaiting for approval that may take weeks in coming.

In the past in Nebraska we have carried on Federal-State-rancher cooperative grasshopper spray programs. We have never had a complaint as to the loss of wildlife under such a closely supervised program. Timing is very important in any spray program if good results are to be achieved.

There is always the chance in these days of modern, fast transportation that we may suddenly find a destructive insect of foreign origin in our midst. Fast and timely action could spell the difference between eradicating the pest or in its becoming firmly entrenched so that in future years billions of dollars of American agriculture could be destroyed.

In such cases there is no time for running through a lot of redtape to clear through other agencies that do not have the least idea as to the proper control measures needed to handle a given situation.

I am sure that you will find the Federal as well as the State entomologists do not want to promiscuously use insecticides that will harm our wildlife. Most of us also like to hunt and fish. We automatically would not use an insecticide that we felt would wipe out the wildlife population over a vast area. It may be true that in some instances in the past that a few birds, rabbits, and fish have been lost, but usually this was the result of some private application and not one supervised by Federal and State personnel.

I urge you to give this bill your attention and consideration as I believe it may "hamstring" future Federal-State spray operations.

With kindest regards, I am

Very truly yours,

BUREAU OF PLANT INDUSTRY,
C. J. WALSTROM, *State Entomologist.*

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